Meddelelser om Grønland.

30

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udgivne af

Commissionen for Ledelsen af de geologiske og geographiske Undersøgelser i Grønland.

Tredivte Hefte.

Kjøbenhavn.

I Commission hos C. A. Reitzel.

Bianco Lunos Bogtrykkeri.

1911.

Carlsbergfondets Expedition

til

Øst-Grønland,

udført i Aarene 1898—1900

under Ledelse af

G. Amdrup.

Fjerde Del.

Indhold.

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1907.

Pris: 4 Kr.

Botanical exploration

of

the East Coast of Greenland between 65° 35′—
74° 30′ lat. N.

by

Chr. Kruuse.

1904.

As a member of the Amdrup Coast Expedition of 1898—99, my instructions were to make natural-history investigations both during our voyage and while wintering at the trading-station of Angmagsalik. I received two sets of instructions for my guidance from the Commission for the Geological and Geographical investigation of Greenland.

One of these, written by Professor Eug. Warming, consists of four main parts, which are sub-divided into 29 paragraphs, giving very exhaustive directions as to the botanical works to be done during the voyage. The other briefly mentions the geological investigations which were to be made, time and circumstances permitting. As these instructions will undoubtedly be of great interest to others also, and as the former in particular may serve in future as a model, I give them here *in extenso.*

Instructions

given to **Chr. Kruuse** for the Expedition to East-Greenland in 1898—99 by Professor Eug. Warming.

A. Floristic investigations.

1. At every place visited by the Expedition as many species as possible should be collected. Botanists naturally also like to have as many specimens as possible, but the different species are the main object, the circumstances relating to their distribution being of the greatest importance for the history of the vegetation. From this point of view the interiors of the fjords, which the Expedition will visit, are of especial interest. Well-known and generally distributed species need not be collected when circumstances are unfavourable for the collecting, but their names must at any rate be noted.
2. Please observe the height above sea-level reached by the species, and the snow-limit.

3. With regard to lichens, attention is directed to the fact that many species grow on the ground amongst moss, and on dry branches.
4. Gathering of Fungi. All dry, black-spotted portions of plants; all leaves lying loose on the ground; and the dung of reindeer, hares and other animals, may be expected to have fungi growing on or in them. All living plants the colour of which is not natural must be gathered.
5. Great attention should also be paid to the collecting of Mosses; not only specimens bearing fruit, but sterile specimens also are of interest. Examples of close turf builders are also wanted. They are no doubt most common in the interior of the fjords.
6. Freshwater as well as marine algæ are to be collected, and during the whole voyage, the bottom of the sea must be dredged for „Plankton", wherever possible. Red snow must not be forgotten; it may be put into glass vessels, and when it has melted, the water may be poured off and the sediment kept in spirit; a specimen of it may also be dried in the air, so that later on the algæ may perhaps be brought to life again. Algæ and other plants occurring in holes or otherwise on the inland-ice are of very great interest; please gather specimens and keep them, both in a dried condition on paper, and, more particularly, in spirit.

B. Investigations to be undertaken with regard to the Vegetation.

1. It is impossible to make too many notes regarding everything which helps to give a true picture of plant associations; their occurrence and appearance according to exposition, inclination of ground, etc.; also the sociability of the species; the density and height of the vegetation; the condition of the soil (please examine whether there are earthworms, and what other animals live in it). Particular attention should be paid to the following: Do willow copses, heaths, stone fields (Fjeldmark), debris etc. occur here (cfr. Warming: On the Vegetation of Greenland in Meddelelser om Grønland, Hefte 12), and how are they situated? Which are the dominant species? — Generally, they may be classified according to the following scale:

(a) Species forming carpets, (b) occurring abundantly, (c) dispersedly, (d) sparsely, (e) rarely. — Are lichen and moss-heaths met with here otherwise than in small patches, and if so, where? Do these formations occur in sheltered places or in those exposed to the wind? How far up the hills do they extend? How far up does the vegetation extend as a whole? Which of the lichens are the dominant ones? (In Lapland several varieties of lichen-heaths are met with, formed in different localities according to the strength and desiccating power of the wind). Are the rocks coloured by lichens and algæ? Photographs of landscapes and vegetation are much wanted, also of single tufts of plants (e. g. large examples of Silene acaulis and the like) and of single plants (e. g. willow, bushes of dwarf birch).

2. The height of the bushes should be measured. Specimens of the thicker branches should be taken (only a few inches are necessary, but for the sake of the determination, preferably with branches bearing leaves attached, or at any rate tied on). It is desirable to get illustrations of the habit (not photographs but drawings of the forms of the bushes, espalier formations etc.). Are there any indications that the forms of the bushes are dependent on the height of the snow-sheet (the branches projecting beyond it being killed by desiccating wind).

   Can any information be had of the extent and duration of the snow-sheet in the interior of the country?

3. With regard to the marine alga-vegetation the following points should be noted:

   Which species form the main part of the vegetation at each place, both in the littoral region (beach) and in the sublittoral? It will be desirable to get photographs of the alga-vegetation at low water. Also photographs of single large Laminariaceæ. Information is required as to the duration of the Ice-foot at different places. Does *Ascophyllum nodosum* occur as commonly in the littoral region as the two *Fucus*-species (*F. vesiculosus* og *F. inflatus*)? Which of the Fucaceæ extends farthest into the fjords? Is *Laminaria cuneifolia* peculiar to disturbed waters (running water, exposed places, etc.)? Can this form, which typically is quite short-stalked, also occur in forms with longer stalks? Can *Agarum Tuneri*

occur as a dominant social species in the upper part of the sublittoral region?

4. Please take particular note of the relation of the vegetation to the Inland-ice and Glaciers. Collect all information bearing on the possibility of the existence of plant-life in Greenland during the Glacial-Period. This includes not only observations regarding the marks of the height and extent of the ice-sheet in general, but also the occurrence of plants at the present time — in the vicinity of the ice and even upon the ice (ice covered with earth); and on the highest mountain tops —, and also the climatic conditions which predominate here.
5. Do peat formations occur? Which are the peat-forming plants in particular? The depth and quality of the peat should be examined, and the circumstances (soil or climate) which have caused the formation of peat.

C. Biological questions.

1. Is the vegetation snow-covered in winter? If vegetation occurs in places bare of snow, what appearance has it? Please collect specimens of portions which have survived the winter, either fresh green or otherwise, if possible in spirit or at any rate in a dried condition. What appearance has the snow-covered vegetation which has lately been laid bare or that which is still lying under the snow? Specimens should be collected in spirit, so as to ascertain amongst other things whether the plants contain stored-up nourishment, and whether there are any slight traces of flowers going to be developed in the following year.
2. As spring approaches, please note on the spot the first time each species is observed in flower. It will be of great interest, if it can be ascertained when spring generally and on an average comes in the regions visited by the Expedition. Spring phenomena in the animal kingdom should also be noted as far as possible.
3. In order to be able to examine the flowering and pollination phenomena it is desirable to have the flowers put in spirit while fresh. Observations regarding the visits of insects are desirable; if possible the visiting insects should be collected together with the flowers. Fresh flowers should be

put in a small glass vessel containing spirit immediately after gathering, and as far as possible should be protected from shaking, etc. If possible attach a short pencil-note about development, etc.

4. Which plants bear ripe fruit? Please collect everything which bears testimony of fructification, e. g. also old empty fruits. Ripe seeds of all species are very much wanted.
5. Can a species break off its process of flowering and fructification at the beginning of winter and resume it next spring, without having suffered during the winter? (cfr. a Cochlearia at the winter station of the „Vega").
6. Please observe the duration of the sunshine; and register temperatures in the sun and at the height of the vegetation, preferably with thermometer balls of a colour approaching that of the green leaf or at any rate black, so that an idea may be formed of the degree of heat to which the vegetation is exposed.
7. Has earth been met with which is always frozen and to what depth? Does this obviously affect the vegetation, and in what way?
8. Note the degree of moisture in the air on the coast and up in the country; the temperature of the snow, the earth, and the water at different depths.
9. Please note all spring and autumn phenomena in the animal and vegetable world (the coming out of the leaves, and their fall; the tint of the autumn leaves; migratory birds, etc.), and make collections giving information about them.
10. Can birds and other animals carry seeds which have the power of germination, or in any other way bring about the migration of plants?

    Darwin, and others since his time (amongst them Warming and Kolderup Rosenvinge) have proved that seeds, which have lain in salt water for a long time, have kept their power of germination. On a long sea-voyage, e. g. from Greenland to Copenhagen, there are good opportunities for making such investigations, and if there is time and opportunity, it would be of very great interest to proceed with such investigations, as they would be able to throw light on the possibility of plantmigration over the sea.
11. If opportunities occur, the colours of the flowers should be noted according to the scale provided for the purpose.

12. Specimens of the finest roots of heather — preferably with some earth attached — should be put in spirit (on account of the threads of fungi which occur around the roots).

    The soil of the heaths as a whole requires to be thoroughly investigated, both with regard to the formation of heath-mould and to ascertain whether grey heath-sand and hardpan are formed in the same way as on the Jutland heaths.
13. Leaves of flowering plants should be put in spirit, preferably straight from the field, and should be accompanied by detailed information regarding the dampness of the locality, exposition, time of day when collected (at what o'clock), etc.
14. Little is known as to how far the light during the night is sufficient to produce carbonic acid-assimilation. This question should be investigated if opportunity offers. This would probably be most easily done by wrapping the leaves in tinfoil and keeping them from the light until the starch must have disappeared; they should then be uncovered by night, some of them — or portions of the same — should be put immediately in spirit (marked in some way or other), and others to be exposed to the light at night and put in spirit the next morning. The experiment should be made at a favourable temperature (the latter being noted).
15. The flowering plants should be gathered with the parts under the ground complete, and large enough to show how the species grow (whether they have a permanent primary root? whether runners? etc.).
16. How do the plants manage in the loose debris which is constantly sliding and which occurs upon and at the foot of so many basalt mountains? How are they formed? Do the roots go deep? Are they torn asunder? The vegetation is doubtless very open and poor in such places — to what degree, should be investigated.

D. Other investigations.

1. Drift-wood should be collected.
2. Attention is especially directed to the occurrence of the two different species of Dryas and their intermediate forms.

Copenhagen, July 4, 1898.

Copenhagen, April 15, 1898.

Notes regarding the geological observation to be made during the Expedition to the East Coast of Greenland in 1898.

The member of the Expedition who in particular will have to make geological observations, Mr. Chr. Kruuse, will undoubtedly make himself acquainted — at any rate in some measure — with the literature treating of the adjacent regions which have been already investigated, and from which he may consequently draw fairly correct conclusions as to what he may expect to find on the stretch of land he will have an opportunity of traversing. As he, being a botanist, will have enough to do with living nature, he cannot be asked or expected to bestow any considerable time on geological investigations. He will, however, be expected, as far as he has time and opportunity, to collect minerals as well as specimens of rocks and fossils, when these appear to him to be of special importance. By fossils are understood also sub-fossil shells of mollusks from the latest strata. He will note whether the shells of mollusks occur in the moraines, since such are found at several places on the west coast, and even at very considerable heights. They probably originate from unknown strata which have been eroded by the ice.

The geological observations which will presumably be more easily made in connection with the botanical investigations are: observations regarding the extent of the land-ice; how far up the ice-striated surfaces and transported blocks reach on the hills, also whether any peculiarly characteristic moraine and ridge-formations are to be met with. Farther, observations are required regarding any possible change in the height of the water; whether there are any raised strata with animal and plant-remains, or any indications that the water is rising. If the water since the period of the ice-covering has stood at a higher level than at the present time, the moraines and the scattered stones, which otherwise characterize the area whence the ice has retired, will be either washed away or water-worn and gathered on raised beaches, as pointed out by Mr. Pjetursson with regard to the Bay of Disko. The striations in such areas will also be more or less effaced. Does the land-ice carry characteristic species of stones such as lava and plant-remains (also diatoms) which could help to solve the question of the drift of the ice in the Arctic Ocean?

It is desirable to take photographs and drawings of localities possessing geological interest.

Sign.
C. F. Wandel. K. J. V. Steenstrup. G. Holm.

It is very extensive investigations that are demanded in these instructions, and it was clear to me, even before starting, that much would have to be left undone, moreover, that much of the information wanted could not possibly be procured in the measure of time that was at the disposal of the expedition, and finally, that it would be more than a single man could do to fulfil the whole task properly under the particular circumstances.

In the course of the exploring journey I was still more convinced of this, and I soon had to admit that nothing but an utterly fragmentary work could be done, still less than I had imagined.

The difficulties of our geographical main task were much greater than expected, the objections we met with demanded such an amount of energy, strength, and time that only a minimum of these latter was left for science of nature, a minimum which was not even always allowed to work under circumstances of a merely passably favourable kind. As will appear from the following report, and as already stated by the chief of the expedition, only very small collections could be carried along, and these collections were made in accidentally chosen places, where the ice or our exhaustion forced us to make for the land, almost always on the outside sea cliffs or in direct vicinity of the sea, where circumstances were the very worst for animal and vegetable life. Only on single occasions circumstances were more favourable as to biology, and our results consequently better, but even then anything but a most superficial investigation was out of the question, as time was short — in the most favourable locality visited by me „Søndre Bræfjord“ all my stay on shore lasted 105 minutes which time was mostly spent in noting the rather abundant flora of the place. On the other hand our only prolonged stay unfortunately had to be on a little sea cliff „Sten-Ø“, where investigations to even a moderate extent were naturally rendered most difficult, as the part of the island in which we had settled was separated by several almost impassable clefts

from the other part which was higher, and by far more favourable for scientific purpose. Ten days of forced stay on a waste sea cliff, in mostly bad weather, cannot possibly give anything but a scanty result.

As to the stay of the expedition in the district of Angmagsalik it took place only in wintertime; this was a good opportunity of studying the phenomena of wintering, but these studies must necessarily imply a knowledge of both the vegetation and the localities in summertime, a condition almost totally wanting. It is true that I saw the setting in of spring, but it had hardly begun when duty called me towards the north, and in all our journey out we did nothing but follow close on spring till at last we overtook winter itself.

In our northernmost place (July 19th) it was still perfectly wintry. Our journey back towards the south brought some fine midsummer days with a very good result, and during this period (July 30eth to Aug. 11th) I made my best work; but when we had arrived home to the district of Angmagsalik, in relatively safe conditions, the enormous tension produced by our struggle for life and science relaxed. We had fulfilled our geographical tasks, and our energy slackened, at the same time as our bodies reacted against the overexertion caused by our life during the last months, and several smaller complaints proved that the concentrated food, on which we had lived, was well apt to preserve phycical strength in times of very hard work, but that it did not agree with us under ordinary circumstances. In short, our work only dragged on, and when we arrived in our station, it was perfectly clear to me that it would be impossible to give any valuable description of the flora of the district of Angmagsalik.

Even before our journey back, I had contemplated a biological-floristical investigation of Angmagsalik which I should have preferred to carry out at once by staying the next winter there. This was however impossible, as I had no provision, no tools, no instruments, and last not least, no permission to stay in the country. During our journey home, I finished my scheme and applied with it to the directors of the Carlsberg Fund who kindly accepted my scheme and promised to leave the necessary means at my disposal. The investigation was however not at once carried out, as I had to partake in the following year (1900) of the expedition commanded by Lieut. Amdrup to the district of Scoresby-Sound. This expedition

worked under easier and more favourable circumstances and ample collections were made; but though very interesting, the localities were rather uniform and not characteristically Greenlandic, and above all, they were for the greater part well known, as our head quarter Scoresby-Sound had already been explored three times, among others by the excellent observers Professor Nathorst and mag. Hartz. There was therefore not much to be discovered in these districts, so much the less as we followed in the tracks of Nathorst. Our best results were from Sabine-Ø and Jan Mayen, where much hitherto unknown was really observed.

Enlightened by experience I returned from this voyage and planned an investigation of Angmagsalik which was carried out by aid of the Carlsberg Fund in 1901—2. This time I set out alone, only accompanied by my wife, as experience had taught me that many members do not anyhow add to, but rather diminish the results of an expedition, as many contradictory interests must be made to work together, and as consequently the many only can obtain a little each, and nobody is or can be satisfied. The ideal will be, one man one task, but as the task easily becomes too much for one man, and as much purely mechanical work may as well be done by another, I should have preferred to be accompanied by one or two European assistants who might have taken some of the burdens of daily life off my shoulders. As it was I had however a good opportunity of thoroughly investigating the extensive and interesting district of Angmagsalik and of making ample collections.

It is the results of these three voyages to Greenland in 1898—99, 1900 and 1901—1902 [1]), that I am now bringing before the public. In order to give a general view and for some floristical purposes I have preferred to divide my work into two parts. The coast north of Cape Wandel which has not been much explored is treated by me together with the collections from the expedition of 1900, whereas the southern part is naturally connected with the district of Angmagsalik, and consequently they are treated together.

Besides my own collections, those made by N. Hartz and G. Amdrup, and many smaller contributions from the changing members of the expeditions are included. I have also revised the collections of Swedish expeditions in the museums of Upsala and

[1]) Meddelelser om Grønland 27. Hefte.

Stockholm, in so far as they are connected with the above mentioned coasts. My best thanks are due to Professor Nathorst and Professor Wittrock in Stockholm for their kind assistance. I likewise would express my gratitude to the Danish authorities and persons who have helped me in revising my material.

It is my intention to give a further report of the expedition itself and the accompanying circumstances in the detailed description of my journey which will make a continuation of my „flora“, and in which I also mean to give an account of the difficulties I had to overcome, especially before my last journey, and of the institutions and people who have lent me their weighty and valuable assistance, without which I should hardly have been able to fulfil the task I had taken upon myself.

I.

The Marine Algæ of East Greenland

by

Helgi Jónsson.

1904.

Introduction.

I have been charged with the determination of the latest collections of marine algæ from East Greenland. These collections have been procured by Mr. C. Kruuse, and the material dates from Amdrup's expedition in which Mr. Kruuse as well known took part, and from Kruuse's own expedition to the district of Angmagsalik. After the publication of L. K. Rosenvinge's exhaustive works on the Marine Algæ of Greenland (Grl. Havalg. and Deux. Mém.) several important papers have been written which have greatly altered the view regarding the limitation of species in some genera, such as *Acrosiphonia*, *Ulothrix* and *Sphacelaria*; therefore I have moreover been charged with a second examination of all the Greenlandic material of the genera *Acrosiphonia*, *Ulothrix* and *Sphacelaria*. In revising this material I have met with some new habitats of some intermingled species, as may be seen by the following list.

According to Rosenvinge's statement[1]) 83 species were previously known from East Greenland. To this number one species, *Actinococcus subcutaneus*, should be added, it is regarded by Rosenvinge (Deux. Mém.) as the nemathecia of *Phyllophora Brodiœi* and thus not included in the number of species. Of the 85[2]) species gathered by Kruuse 29 were not previously

[1]) L. Kolderup Rosenvinge, Om Algevegetationen ved Grönlands Kyster, Særtryk af «Meddelelser om Grönland» XX, Kjöbenhavn 1898, p. 180.

[2]) In Kruuse's collection there were moreover found two species, *Ectocarpus tomentosus* (Huds.) Lyngb. and *Ectocarpus fasciculatus* (Griff.) Harv.

known from there; to the latter should be added 1 species (*Calothrix scopulorum*) found by N. Hartz in Heklahavn and not before mentioned. Thus we know for the present 114 species from East Greenland.

From West Greenland 156 species (to which number *Actinococcus subcutaneus* should be added) are enumerated by Rosenvinge, but on account of a different limitation of the species belonging to the three above mentioned genera (ɔ: *Acrosiphonia*, *Ulothrix* and *Sphacelaria*) 7 species must be added to this number, besides 1 species, *Microsyphar Polysiphoniæ* Kuck., not formerly mentioned from West Greenland. Thus the complete number of species from West Greenland is 165. All Greenland has 176 species.

Kruuse's collections have greatly amplified our knowledge of the marine algæ of East Greenland; the number of species has been considerably increased, and the distribution of the marine algæ along the coast is now far better known than before. 103 species of the 114 East Greenlandic species are also found on the western coast. The 11 species occurring only on the eastern coast are reported by Rosenvinge (l. c. p. 177), still it ought to be mentioned that *Alaria flagellaris* should be regarded as identical with *Alaria esculenta* f. *pinnata*. Thus the latest collections from the eastern coast furthermore confirm Rosenvinge's statement as to the difference between the marine flora of East and West Greenland (l. c. p. 176—178). As both *Alaria esculenta* f. *pinnata* and *Alaria grandifolia* are now known from East Greenland and moreover *Rhodochorton intermedium* Kjellm. from Spitsbergen is identic with *Rhodo-*

which are not included in this number, and not at all mentioned in the following list, as Kruuse is not able to give any certain statement as to their habitats and does not remember whether they were growing loose or fastened to the bottom. Though it is scarcely probable that these species occur fastened to the bottom in East Greenland, I still mention them, for the purpose of calling the attention to them of future investigators of the eastern coast of Greenland.

chorton Rothii, the resemblence between the marine flora of East Greenland and Spitsbergen (Rosenv. l. c. p. 154) is still greater.

In the following list all species of marine algæ presently known from East Greenland are enumerated, but only the new habitats are mentioned. The East Greenlandic species have numbers, in contradistinction to the species mentioned from West Greenland. The species are arranged in the same way as in Rosenvinge's books (Grl. Havalg. and Deux. Mém.) some few excepted; the localities are disposed from north downwards on the western coast and from south upwards on the eastern coast.

A list of the marine algæ gathered by Kruuse at Jan Mayen will be published in Botanisk Tidsskrift.

List of the mentioned localities:

West Greenland:	N. Lat.
Upernivik	71° 47′
Umanak	70° 40′
Atanikerdluk	70° 2′
Sarkak	70° 00′
Unartok	69° 55′
Ujaragsugsak	69° 50′
Klokkerhuk	69° 30′
Godhavn	69° 14′
Christianshaab	68° 49′
Inilik in Atanek Fjord	68° 00′
Agto	67° 57′
Tatsip-ata	67° 20′
Holstensborg	66° 56′
Sukkertoppen	65° 25′
Ny Hernhut	64° 11′
Godthaab	64° 11′
Merkuitsok	63° 45′
Igdlunguak south of Merkuitsok	63° 38′
Fiskernæsset	63° 5′
An island off the glacier of Frederikshaab	62° 30′
Frederikshaab	62° 00′
Nigamiut pr. Frederikshaab	62° 00′

West Greenland:	N. Lat.
Kvannefjord	62° 00′
Neriak	61° 35′
Smallesund	61° 32′
Issa west of Arsuk Fjord	61° 16′
Ivigtut	61° 13′
Arsuk	61° 10′
Arsuk Storö	61° 5′
Kornok Isbræer	61° 5′
Igdlorsuit	61° 4′
Sermilik Fjord	61° 4′
Ataneritsok (Igaliko)	61° 00′
Narsak	60° 55′
Kakortok	60° 49′
Kagsimiut	60° 48′
Upernivik Ö near Kagsimiut	
Julianehaab	60° 43′
Umanalik east of Kangek Ö	60° 36′
The rock Nunanguak west of Umanak	60° 34′
Sardlok	60° 32′
A rock near Kaersok	60° 29′
Umanarsuk	60° 28′
Umanartut	60° 26′
Sydpröven	60° 26′
The northern side of Sermersok	60° 23′
Tasermiut prope Korsoak	60° 18′
The south end of Amitsok opposite Sermersok	60° 7′
Nanortalik	60° 7′
The south side of Tusardluarnak	60° 7′
Kimatulivigsalik, Kitsigsut Öer	about 60° 2′
East Greenland:	
Ikerasarsuk	60° 2′
Nunatsuk	60° 4′
Kap Dan	65° 31′
The estuary of Kalerajuek near Kap Dan	65° 34′
Tasiusak	65° 37′
Kakasuak	65° 38′
Ikerasak	65° 49′
Unartok	65° 50′

East Greenland:		N. Lat.
Kangarsik		65° 50′
Ikerasausak	about	65° 52′
Tiningnekelak		65° 54′
Ikatek		65° 55′
Angmagsivik		65° 58′
Smalsund		65° 59′
Moræneö		66° 1′
Stenö		66° 2′
Ödesund		66° 11′
Kangerdlugsuatsiak		66° 15′
Bræfjord		66° 20′
Nualik		67° 16′
Kap Dalton		69° 25′
Turner Ö	about	69° 40′
Turner Sund	about	69° 45′
Dunholm		69° 55′
Heklahavn		70° 27′
Polhems Dal in Kong Oscars Fjord	about	72° 30′
Kap Borlase Warren		74° 15′
Sabine Ö		74° 30′

Abbreviations:

Gr. occ. = Groenlandia occidentalis.
Gr. or. = Groenlandia orientalis.
N. H. = N. Hartz.
L. K. R. = L. Kolderup Rosenvinge.

Copenhagen, Botanical Museum, July 1904.

A. Rhodophyceæ.

I. Florideæ.

Fam. *Corallinaceæ.*

Lithothamnion Phil.

1. **L. glaciale** Kjellm., K. Rosenv. Deux. Mém. p. 9.

2. **L. flabellatum** K. Rosenv. Deux. Mém. p. 10.

3. **L. varians** Fosl., K. Rosenv. Deux. Mém. p. 11.

4. **L. foecundum** Kjellm., K. Rosenv. Deux. Mém. p. 12.

5. **L. investiens** Fosl., K. Rosenv. Deux. Mém. p. 13.

6. **L. circumscriptum** Strömf., K. Rosenv. Deux. Mém. p. 13.

7. **L. læve** (Strömf.) Fosl. [1]), K. Rosenv. Deux. Mém, p. 14.

This is the only species of calcareous algæ in the collection. It was collected with conceptacles in July. Further information as to its occurrence is wanting.

Gr. or.: Stenö.

Hildenbrandia Nardo.

8. **H. rosea** Kütz., Rosenv. Gr. Havalg. p. 826.

On stones in the littoral region; collected in June and July with sporangia.

Gr. or.: Stenö, Kap Dalton.

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[1]) This species has kindly been determined by M. Foslie.

Fam. *Squamariaceæ.*

Peyssonellia Dcsne.

9. **P. Rosenvingii** Schmitz, K. Rosenv. Deux. Mém. p. 14.

Cruoria Fries.

10. **C. arctica** Schmitz, K. Rosenv. Deux. Mém. p. 15.

Petrocelis J. Ag.

11. **P. polygyna** (Kjellm.) Schmitz, Rosenv. Deux. Mém. p. 16.

The species was found on stones, together with *Lithoderma fatiscens* and *Lithothamnion*. The greater part of the stones were fastened to the haptera of species of *Laminaria*. *Petrocelis polygyna* was abundant on the stones, and often the Lithoderma crust was overgrown by it. The main part of the material from Kap Borlase Warren and Sabine Ö was sterile, and only in a few cases I have met with carpogonia.

Specimens gathered in July at Stenö were rich in starch, the uppermost cells excepted, as mentioned by Rosenvinge (l. c.) and were supplied with gonimoblasts.

Gr. or.: Stenö, Kap Borlase Warren on exposed shore, in a depth of 5 fathoms, Sabine Ö in a depth of 5—10 fathoms.

Rhododermis Crouan.

12. **Rh. elegans** Crouan, K. Rosenv. Deux. Mém. p. 18.

Fam. *Dumontiaceæ.*

Dilsea Stackh.

13. **D. integra** (Kjellm.) K. Rosenv. Deux. Mém. p. 19.

The specimens I have had for examination are up to 15 cm. long and 4 cm. broad. Most of the specimens have almost perfectly even margins. The species was collected in July, in an exposed place, in a depth of 3—8 fathoms.

Gr. or.: Sabine Ö.

Fam. *Ceramiaceæ.*

Antithamnion Näg.

14. **A. Plumula** (Ellis) Thur. *β.* **boreale** Gobi, K. Rosenv. Grl. Havalg. p. 787, Deux. Mém. p. 21.

This variety has been gathered in many places on the eastern coast of Greenland. It mostly grows on other algæ, such as *Polysiphonia arctica*, *Euthora cristata*, *Ptilota pectinata*, etc. Its normal length seems to be 2 cm., but a few specimens attain a greater length, up to 3 cm. Glandular cells were frequent. The main part of the material gathered in June and July is sterile, and only a few plants collected in the latter part of June had normally developed tetraspores. It was collected in a depth of 3—5 and up to 30 fathoms.

Gr. or.: Kap Dan, Tasiusak (3—30 fathoms), Kakasuak, Angmagsivik, Stenö, Ödesund, Nualik, Kap Dalton, Turner Sund (sheltered shore, rapid current, 3—5 fathoms), Sabine Ö (exposed shore, 3—8 fathoms).

Ptilota C. Ag.

15. **P. pectinata** (Gunn.) Kjellm., K. Rosenv. Gr. Havalg. p. 790, Deux. Mém. p. 22.

This species seems to occur just as frequently on the eastern as on the western coast of Greenland. The material collected in January and May—September was sterile. The largest specimens were 20 cm. long. Found in a depth of 3—19 (—30) fathoms.

Gr. or.: Kap Dan, Tasiusak, Kakasuak, Kangarsik, Smalsund, Ödesund, Sabine Ö (exposed shore, 3—8 fathoms).

Rhodochorton Näg.

16. **R. Rothii** (Turt.) Näg., K. Rosenv. Grl. Havalg. p. 791, Deux. Mém. p. 23.

The specimens I have had for examination were collected in May, June and July, and are almost all sterile; only a few abnormally developed, but conspicuously quartered tetrasporangia were found in a sample gathered in July. The specimens attain

a length of up to 1,5 cm., and the breadth varies from 14—17 μ. Some specimens growing on *Chætomorpha Melagonium* differed in this, that some of the erect filaments sometimes were growing spirally round the *Chætomorpha* filament.

The longest specimens were found growing in the littoral region in a crack on Stenö.

Gr. or.: Tasiusak, Kangarsik, Stenö, Nualik.

17. **R. penicilliforme** (Kjellm.) K. Rosenv. Algues mar. d. Grl. p. 66. Deux. Mém. p. 23. R. mesocarpum (Carm.) v. penicilliforme Kjellm., K. Rosenv. Grl. Havalg. p. 792.

This species grows on Bryozoa as well as on different algæ. On the Bryozoa it always occurs together with *R. membranaceum.* Some specimens found on *Chætomorpha Melagonium* are specially remarkable on account of their elegantly developed basal discs and their luxuriant growth altogether. The erect filaments were vigorously developed with undivided and divided sporangia; 2—3 unilateral branches were not rarely met with. The thickness of the filament varied from 11—16 μ.

Gathered in May, June, August and September. Tetraspores were observed in a gathering from August.

Gr. or.: Tasiusak, Ikerasak, Kangerdlugsuatsiak.

18. **R. membranaceum** Magnus, K. Rosenv. Grl. Havalg. p. 794. Deux. Mém. p. 23.

Some sterile specimens were collected in June and September, growing on Bryozoa together with *R. penicilliforme.*

Gr. or.: Tasiusak, Ikerasak.

Fam. *Rhodomelaceæ.*

Rhodomela C. Ag.

19. **R. lycopodioides** (L.) Ag., K. Rosenv. Grl. Havalg. p. 796. Deux. Mém. p. 24.

α. **typica** Kjellm.

The specimens I have had for examination belong to f. *com-*

pacta Kjellm. and f. *laxa* Kjellm. Their length varies from 2—12 cm. Young shoots were abundant in July and September.

β. **tenuissima** (Rupr.) Kjellm.

The specimens attain a length of 7 cm., are abundant in hair leaves; the youngest branches often corymbous. Gathered in June in the littoral region and in a depth of more than 2 fathoms.

α. typica.

Gr. or.: Tasiusak (Amaga), Stenö, Nualik.

β. tenuissima.

Gr. or.: Moræneö.

Polysiphonia Grev.

20. **P. arctica** J. Ag., K. Rosenv. Grl. Havalg. p. 800, Deux. Mém. p. 25.

The species was gathered sterile in May—September. The length varies from 7—20 cm. The pericentral cells are generally 5—7, and but rarely 4, as mentioned by Rosenvinge. The specimens from Kap Borlase Warren were supplied with monosiphone haptera irregularly placed in the lower part of the frond. These haptera were most often discoidally widened at the end; they are perfectly like those mentioned by Rosenvinge in Deux. Mém. l. c. In May—August the species was richly supplied with new shoots. The older parts of the frond are generally much overgrown with Diatoms. It was gathered in a depth of 3—20 (—30) fathoms both on open and sheltered shores.

Gr. or.: Tasiusak, Ikerasak, Smalsund, Stenö, Ödesund, Kangerdlugsuatsiak, Nualik, Turner Sund, Kap Borlase Warren, Sabine Ö.

Fam. *Delesseriaceæ.*

Delesseria Lam.

21. **D. Baerii** (Post. et Rupr.) Rupr., emend., K. Rosenv. Grl. Havalg. p. 806. Deux. Mém. p. 26.

α. **typica** K. Rosenv. l. c.

The main part of the specimens belongs to the typical form. They were gathered in a depth of 1—3 fathoms, and their length varies from 5—15 cm. The material was collected as well on open as on sheltered shores in June—July and consists of mere sterile plants. The species seems to be common.

β. **corymbosa** (J. Ag.) K. Rosenv. l. c.

This variety has only been found in one place, on sheltered shore, in rapid current. Sterile specimens 6 cm. high.

The main form was found in the following places:

Gr. or.: Kap Dan, Tasiusak, Kakasuak, Kangarsik, Angmagsivik, Turner Ö, Turner Sund, Sabine Ö.

β. corymbosa:

Gr. or.: Turner Sund.

22. **D. sinuosa** (Good. et Wood.) Lam., K. Rosenv. Grl. Havalg. p. 808, Deux. Mém. p. 27.

The main part of the specimens belongs to f. *lingulata*, and only a few plants may be referred to f. *typica* or f. *quercifolia*. The largest plants are 30 cm. long. The species was gathered in May—August in a depth of up to 30 fathoms. Specimens with tetraspores were found in July.

It is worth noticing how common f. *lingulata* is in this collection from the eastern coast; formerly it was only known from a single place in Greenland, Sabine Ö (Rosenv. l. c.), and is not mentioned at all from the western coast. This form which usually occurs in sheltered places, was collected in East Greenland in exposed places, near Kap Borlase Warren (11 fathoms), off Turner Ö (15—20 fathoms) and near Sabine Ö (3—8 fathoms). In Turner Sund it was gathered on sheltered shore, in rapid current and in a depth of 3—5 fathoms. Possibly such places may be called sheltered on account of the considerable depths, and I also suppose that the presence of the ice for the greater part of the year reduces the effects of the exposed position.

Gr. or.: Kap Dan, Tasiusak, Nualik, Turner Ö, Turner Sund, Kap Borlase Warren, Sabine Ö.

Fam. *Rhodymeniaceæ.*

Rhodymenia (Grev.).

23. **R. palmata** (L.) Grev., K. Rosenv. Grl. Havalg. p. 809, Deux. Mém. p. 28.

The main part of the specimens belongs to the typical form. The breadth of the frond varies considerably. Multipartite specimens with narrow lobes somewhat reminding of f. *sarniensis* were found in Tasiusak. Many of the specimens have small prolifications especially in the older parts of the frond. A few fragments from Smalsund seem most probably to belong to f. *prolifera.* The length of the frond varies from 5 to 46 cm. The species was gathered in May—August, and with tetraspores in May—July; in a depth of 3—30 fathoms.

Gr. or.. Tasiusak, Ikerasak, Tiningnekelak, Smalsund, Kangerdlugsuatsiak.

Halosaccion Kütz.

24. **H. ramentaceum** (L.) J. Ag., K. Rosenv. Grl. Havalg. p. 825, Deux. Mém. p. 43.

The specimens I have had for examination belong to f. *robusta* and f. *ramosa*; their length varies from 10—30 cm. In specimens gathered in May young shoots were abundant. The species was collected in a depth of up to 19 fathoms in May—September. Specimens with tetraspores date from June, July and September. The species seems to be common.

Gr. or.: Tasiusak, Ikerasak, Tiningnekelak, Angmagsivik, Smalsund, Ödesund, Kangerdlugsuatsiak, Nualik.

Fam. *Rhodophyllidaceæ.*

Rhodophyllis Kütz.

25. **R. dichotoma** (Lepech.) Gobi, K. Rosenv. Grl. Havalg. p. 812, Deux. Mém. p. 28.

The specimens all have been found in Tasiusak. They were gathered in a depth of up to 30 fathoms and are 10—15 cm. long. The frond of the main part of the specimens is narrow and belongs to f. *fusca* Lyngb., but mingled with this are broader plants belonging to the typical form. The species was gathered with tetraspores in May, with cystocarps in May—June.

Gr. or.: Tasiusak.

Euthora J. Ag.

26. **E. cristata** (L.) J. Ag., K. Rosenv. Grl. Havalg. p. 813, Deux. Mém. p. 28.

The main part of the specimens belongs to f. *angustata* Lyngb., and only a smaller number of plants may be referred to the typical form. The length of the plants varies from 2—17 cm. (f. *typica* 2—5 cm., f. *angustata* 4—17 cm.). These two forms imperceptibly merge into each other; in somewhat exposed places the broader form is found, and the long, narrow one in more sheltered places. The specimens from Turner Sund which were found in a sheltered place in rapid current are intermediate forms between the broad and the narrow ones. Specimens from Tasiusak and Kap Dan attaining a length of 15—17 cm., a length unusual in this species, do not in other respects differ from the ordinary f. *angustata*. Owing to a statement from Kruuse they were gathered in sheltered places.

The species was collected in May—August, in a depth of 3—20 (—30) fathoms. Specimens with tetraspores were gathered in June, and cystocarps were found in May—August.

Gr. or.: Kap Dan, Tasiusak, Stenö, Ödesund, Turner Sund, Turner Ö.

Turnerella Schmitz.

27. **T. Pennyi** (Harv.) Schmitz emend., K. Rosenv. Deux. Mém. p. 29. T. Pennyi, T. septentrionalis K. Rosenv. Grl. Havalg. p. 815 and 817.

The specimens are mostly large, up to 17 cm. long and 12 cm. broad; but mingled with them are however smaller specimens, 2 cm. long, 1,5 cm. broad. Many of the larger specimens have discs and a stalk of up to 2 mm's length; the larger plants supplied with discs were 10—11 cm. long and 10—15 cm. broad. The specimens were gathered in May, July and September, in a depth of 3—20 fathoms. Specimens with cystocarps growing wartlike in the frond were gathered in May. The cystocarps did not seem to be quite ripe.

Gr. or.: Tasiusak, Stenö, Turner Ö, Sabine Ö.

Fam. *Gigartinaceæ.*

Phyllophora Grev.

28. **P. Brodiæi** (Turn.) J. Ag. ***interrupta** (Grev.) K. Rosenv. Grl. Havalg. p. 821, Deux. Mém. p. 32.

All the specimens belong to subsp. *interrupta* which seems to be common; they are up to 16 cm. long and were gathered in a depth of up to 19 fathoms both in exposed places and in Turner Sund in a sheltered place, in rapid current. The species was gathered sterile in May—July and September—October. Young shoots were abundant in May and September.

Gr. or.: Kap Dan, Tasiusak, Tiningnekelak, Ödesund, Turner Sund, Sabine Ö.

Actinococcus Kütz.

29. **A. subcutaneus** (Lyngb.) K. Rosenv. Grl. Havalg. p. 822.

In adhesion to Darbishire's previous view regarding this species[1], Rosenvinge mentions it in Deux. Mém. (p. 32—34) as the nemathecia of *Phyllophora Brodiœi * interrupta*, but in consequence of Darbishire's last treatise on *A. subcutaneus*[2])

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[1]) O. Darbishire: Die Phyllophora-Arten der westlichen Ostsee deutschen Antheils, Kiel 1895.

[2]) O. Darbishire: On Actinococcus and Phyllophora. Annals of Botany Vol. 13, 1899.

it must be regarded as a distinct species growing parasitically in the antheridia of *Phyllophora Brodiæi.*

The specimens were gathered in May and July.

Gr. or.: Tasiusak, Ödesund, Sabine Ö.

Ceratocolax K. Rosenv.

30. **C. Hartzii** K. Rosenv. Deux. Mém. p. 34.

Fam. *Gelidiaceæ.*

Harveyella Schmitz et Rke.

31. **H. mirabilis** (Reinsch) Schmitz et Rke., K. Rosenv. Deux. Mém. p. 39.

Fam. *Helminthocladiaceæ.*

Chantransia Fr.

32. **C. efflorescens** (J. Ag.) Kjellm., K. Rosenv. Deux. Mém. p. 40.

33. **C. microscopica** (Näg.) Fosl., K. Rosenv. Grl. Havalg. p. 825, Deux. Mém. p. 40.

The specimens I have referred to this species ramify abundantly from their very base, which in this species consists of only one cell, as well known. The branches are mostly opposite, but scattered branches are not uncommon. The thickness varies from 6—7 μ. The cells are generally longer than broad, up to more than two times as long as broad.

Epiphytically on *Rhodomela lycopodioides* gathered in September with a few sporangia and long hairs.

Gr. or.: Tasiusak (Amaga).

II. Bangioideæ.

Fam. *Bangiaceæ.*

Porphyra Ag.

34. **P. miniata** Ag., emend. K. Rosenv. Grl. Havalg. p. 826, Deux. Mém. p. 44.

α. **typica** K. Rosenv. Grl. Havalg. l. c.

Only a few specimens have been gathered, all belonging to this variety. It was gathered fructiferous in June. The antheridia contained 16 pollinoids.

In his work about *Porphyra* Hus[1]) attaches much systematic importance to the number of pollinoids. I have therefore tried to apply this character on some specimens from Greenland, Iceland, the Færöes and Norway, belonging to *P. miniata* v. *typica*, v. *amplissima* and v. *tenuissima*, and I have found a number of pollinoids somewhat differing from Hus's statements, as will appear from what follows:

P. miniata v. *typica.* This variety is not described in Hus's work[2]). One specimen from Greenland had 16 pollinoids in each antheridium. Another specimen likewise from Greenland generally had 32 pollinoids in each antheridium, but mingled with antheridia containing 32 pollinoids others were found containing only 16 pollinoids, and the latter seemed to be at the same stage of development as the former. A Færoese specimen mostly had 16 pollinoids in each antheridium but sometimes only 8. Another Færoese specimen had 32 pollinoids in each antheridium in the lower part of the frond but 16 and 8 in the upper part which seemed to be imperfectly divided.

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[1]) Henry T. A. Hus: An Account of the Species of Porphyra found on the Pacific Coast of North America. Proceedings of the California Academy of Sciences, third Series, Botany, Vol. II, No. 6. San Francisco 1902.

[2]) In *P. miniata* v. *cuneiformis* Setchell et Hus the number of pollinoids is stated to be 8.

P. amplissima (Kjellm.) is stated by Hus to have 16 pollinoids in each antheridium. A specimen from Norway (Norv. arct. Mehavn leg. Fosl.) had 16 as a rule, more rarely 32 pollinoids in each antheridium. Sometimes there were only 8 cells, but these were evidently imperfectly divided. A specimen from Iceland likewise mostly had 16 and more rarely 32 pollinoids in each antheridium. In connection with this I shall point out that Kjellman (Arct. alg. Pl. 18, Fig. 8) shows more than 16 pollinoids in two of the antheridia.

P. tenuissima Strömf. is described by Hus as containing 8 pollinoids in each antheridium. A specimen from Iceland, Strömfelt's original specimen, belonging to the Herbarium of the Botanical Museum, had mostly 16 and sometimes 32 pollinoids in each antheridium. A few times I saw only 8, but they seemed to be imperfectly divided.

Thus the number of pollinoids cannot be used as a specifically distinctive character for the above mentioned species, at least not as far as the Arctic and North Atlantic specimens are concerned.

In Grl. Havalg. Rosenvinge mentions that the inferior portion of the thallus of the distromatic forms of *Porphyra* always is composed of a single layer of cells («Observandum praeterea est, imam partem frondis in distromaticis etiam formis semper monostromaticam esse («cfr. Kjellman l. c.» [ɔ: Arct. alg.] «tab. 18, fig. 2») (Rosenv. l. c. p. 829). Hus calls this in question (l. c. p. 185), as he «cannot confirm Rosenvinge's statement, that in the distromatic forms the inferior portion of the tallus is composed of a single layer of cells». In order to investigate this matter more thoroughly I have examined specimens belonging to *P. miniata* v. *typica* and v. *amplissima* both from Iceland, the Færöes and Norway, besides those from East Greenland. In all the specimens examined, the inferior part of the thallus proved to be monostromatic up to a distance of about 0,5 cm. from the base. Thus Rosenvinge's observation is perfectly

right. If Hus is right in stating that the inferior portion of the thallus of the American species is distromatic, there is a strange difference between the American Pacific specimens and the Arctic and North Atlantic plants.

Gr. or.: Ikerasak.

Conchocelis Batt.

35. **C. rosea** Batt., K. Rosenv. Deux. Mém. p. 44.

B. Phæophyceæ.

Fam. *Fucaceæ.*

Ascophyllum Stackh.

36. **A. nodosum** (L.) Le Jol., K. Rosenv. Grl. Havalg. p. 832, Deux. Mém. p. 45.

The specimens I have had for examination were gathered with ripe or almost ripe conceptacles in June, July and September. According to C. Kruuse's statement the species is common in sheltered places, whereas it is wanting completely in exposed localities.

Gr. or.: Kap Dan, Ikerasausak, Unartok, Tiningnekelak, Angmagsivik.

Fucus (L.) Dcne et Thur.

37. **F. vesiculosus** L., K. Rosenv. Grl. Havalg. p. 833, Deux. Mém. p. 45.

The most common form from East Greenland is f. *sphærocarpa* which is closely connected with the other forms, f. *typica* and f. *turgida*, by numerous intermediate forms as in West Greenland. Specimens without bladders are not unfrequent in the material, especially in the collections from the estuary in Angmagsalik.

The species was gathered in May—September. Specimens gathered in May—Juli had young receptacles, whereas the plants from August—September had fully developed receptacles.

Gr. or.: Kap Dan, Tasiusak, Unartok, Ikerasausak, Tiningnekelak, Ikatek.

38. **F. inflatus** L., K. Rosenv. Grl. Havalg. p. 834, Deux. Mém. p. 45.

Fig. 1. *Fucus inflatus* L. f. *membranacea* K. Rosenv.
The specimens from Kap Dalton (comp. the text) photographed in dry state.

This very multiform species is varying much, as might be expected, in East Greenland as in its other areas of distribution. Typical specimens (comp. Jónsson Icel. Alg. p. 187) are however rare in this collection, yet at Tasiusak and Angmagsivik broad typical specimens have been collected, richly supplied with bladders. Not one of the specimens I have had for examination has receptacles by far as long as those of the Icelandic (Jónsson l. c.) and the Færöese specimens (comp. Börgesen Fær. Alg. p. 465, fig. 91). As for the rest the East Greenlandic specimens are considerably varying and form on one hand the

transition to f. *nana* Kjellm. and f. *bursigera* J. Ag. and on the other hand to f. *linearis* (Huds.) and f. *membranacea* K. Rosenv. The shorter specimens (1—4 cm.) with relatively thick frond agree with f. *bursigera* (J. Ag.) Kjellm. which is again by intermediate forms closely connected with f. *nana* Kjellm. Forma *linearis* (Huds.) is scarce in this collection. Forma *membranacea* K. Rosenv. is relatively amply represented. This thinner form of *F. inflatus* ought in my opinion rather to be reckoned a form than a variety, as it has surely been produced by environmental influences (Rosenv. Deux. Mém. l. c.). At Kap Dalton an interesting form belonging to f. *membranacea* was gathered. It consists of low plants with narrow and thin frond; they are not fastened to the bottom but densely entangled, a sort of Ægagropila form. Two samples belonging to this form have been gathered, the greater one is 11 cm. long and 10 cm. broad (Fig. 1). According to reports from C. Kruuse this form was found forming «dense but loose» (ɔ: not fastened to the bottom) «and unbroken strata covering the bottom, in shallow water, in a depth of 2—10 fathoms, in two lagoons near Kap Dalton, where the sea was calm, the covering of ice of long duration, the water salt, the bottom of basaltic gravel».

The species was gathered with receptacles in June—August.

f. *typica*.

Gr. or.: Kap Dan, The estuary of Kalerajuek near Kap Dan, Tasiusak, Tiningnekelak, Angmagsivik, Moræneö, Kangerdlugsuatsiak.

f. *bursigera* (J. Ag.).

Gr. or. Ikerasak, Bræfjord, Nualik.

f. *membranacea* K. Rosenv.

Gr. or.: Kap Dalton, Turner Sund, Polhems Dal.

Fam. *Tilopteridaceæ.*

Scaphospora Kjellm.

39. **S. arctica** Kjellm., K. Rosenv. Deux. Mém. p. 48.

Fam. *Laminariaceæ.*

Alaria Grev.

40. **A. Pylaii** (Bory) J. Ag., emend. K. Rosenv. Grl. Havalg. p. 838, Deux. Mém. p. 48.

α. **typica** K. Rosenv. Grl. Havalg. l. c.

Some small specimens perfectly typical with few and broad sporophylls were gathered in September.

β. **membranacea** (J. Ag.) K. Rosenv. Grl. Havalg. l. c.

This variety is more richly represented in the collection than the former one. It is rather variable, and as mentioned by Rosenvinge, plants agreeing in one respect with one and in another respect with another variety are not uncommon; therefore any plain distinction between these varieties cannot easily be made. On the other hand var. *membranacea* is moreover so closely connected with *Alaria grandifolia* J. Ag. that according to our present knowledge of these forms they cannot be said to differ in anything, but their size.

Var. *membranacea* was gathered with sporangia in July.

γ. **grandifolia** (J. Ag.), Alaria grandifolia J. Ag. Grl. Lam. p. 26.

To this variety I have referred two specimens from East Greenland. They remind of var. *typica* as to the breadth of the lamina and the cordate base; on the other hand as to the length of the stipe, the form of the lamina, the form and the size of the sporophylls, they resemble so much var. *membranacea*, that no natural distinction can be made. As these particular specimens fully agree with J. Agardh's description of *A. grandifolia* (l. c.) I have referred them to this species, and as it seems to me that a specific character is only artificially established between this species and *A. Pylaii*, as enlarged by Rosenvinge, I at least provisionally regard *A. grandifolia* as a variety of *A. Pylaii.*

The Greenlandic specimens which were salted down together with species of *Laminaria* were of the following sizes, measured in centimeters:

	A.		B.	
	Soaked	Dried	Soaked	Dried
Total length	380	323	...	200
The lamina — length	260	230	...	140
The lamina — greatest breadth	60	50	70	55
Stipe	120	93	...	60
Stipe below rhachis		55	...	23
Sporophylls — length	70	54 +	...	77
Sporophylls — greatest breadth	15	...	...	10

These measures of length[1]) both of the lamina, the stipe, and the sporophylls agree well with the measures stated by J. Agardh (l. c.). On the contrary the breadth of the lamina of the Greenlandic specimens is somewhat larger than stated by J. Agardh. J. Agardh gives the breadth of the lamina as one foot and a half (= about 47 cm.), and according to Kjellman (Spetsb. II) the breadth of the lamina is 30 cm. The greatest breadth of the Greenlandic plants is 70 cm. of soaked and 55 of dried material. As no information is given, as to whether the measures of Kjellman and J. Agardh refer to living, soaked, or dried plants, and as furthermore it is most probable that the measured plants were dried, I reckon the difference of breadth between the Greenlandic specimens and the plants from Spitzbergen perfectly unessential. The Green-

[1]) These measures of plants in wet and dry states prove that their total length is reduced 15 % by the drying process, the length of the lamina 11,5 %, the breadth of the lamina in one case (A.) 16,6 %, in another case (B.) 21 %, and the length of the stipes 22,5 %. A single measuring like this does not allow any general conclusion as to the normal reduction by drying of the frond of the several species of Alaria, but as generally the descriptions do not state whether the measures refer to living, soaked, or dried material, it nevertheless shows, that it is not justifiable to let too small a difference of size (breadth or length) have worth as a character of species, variety, or even of form.

landic plants must rather be regarded as thick plants. The midrib is broad, 1—1,2 cm. in the inferior portion of the lamina measured in dry state, and its transverse section is narrowly elliptical as in other varieties of this species. The sporophylls are distant below, less distant upwards as stated by J. Agardh. In the superior sterile portion they reach their greatest breadth (10 cm. dried, 15 cm. soaked) which by far exceeds the measure stated by J. Agardh («sesquipollicem»); but as the breadth of the sporophylls is considerably variable in *A. grandifolia* (comp. Kjellm. Spetsb. II, p. 11), I do not think that any essential importance may be attached to this difference.

According to Rosenvinge (Grl. Havalg. l. c.) and according to what I have seen myself, the position of the sporophylls is not of any systematic importance; the same may be said of the consistence of the lamina, as it is dependant of age (Kjellm. Spetsb. l. c., Rosenv. Grl. Havalg. l. c.) and locality (Rosenv. l. c.). Nor to the length of the stipe may any systematic importance be attached, as it increases with the age of the plant. Thus the above mentioned Greenlandic plants might possibly be regarded as an old *A. Pylaii* v. *typica*; but on account of our present knowledge of v. *typica*, it is not justifiable to determine them as belonging to this variety. I have therefore chosen to identify them with *A. grandifolia*, as they agree with this species better than any of all the described species of *Alaria*.

Gathered with sporangia in June. The specimens were growing in a luxuriant vegetation of *Laminaria*, in a depth of 3—5 fathoms, in rapid current, on a steep rock-side, sheltered by a sea cliff, where no drift ice normally would appear.

α. typica.

Gr. or.: Smalsund.

β. membranacea.

Gr. or.: Tasiusak, Tiningnekelak, Nualik, Kap Borlase Warren.

γ. grandifolia.

Gr. or.: Ikerasak.

41. **A. esculenta** (L.) Grev. var. **pinnata** (Gunn.) Kjellm. Handbok p. 29, A. flagellaris K. Rosenv. Deux. Mém. p. 49.

In the collection I have had for examination two somewhat badly conserved specimens are found which differ from *A. Pylaii* by the equilateral transverse section of the costa. Their sizes measured in centimeters are as follows:

Total length	The lamina		Stipe	Stipe below rachis	Sporophylls	
	Length	Breadth			Length	Breadth
112	100	20	12	3	27	5,2
132	119	36	13	5	30	5

The base of the lamina is broadly cuneate. The transverse section of the costa is angular, but not rectangular, the two longer sides are always straight and parallel. The sporophylls are dense and not placed in a furrow. The stipe is terete and short, especially the part below the rachis is exceedingly short. In the inferior portion of the rachis scars of fallen sporophylls are visible. In one specimen the rachis is considerably thicker than the inferior portion of the stipe. For the present I refer these specimens with some doubt to *A. esculenta* v. *pinnata*, as a form with short stipe. Any final determination of to which species these plants belong must be put off till some better material will be at our disposal.

Gr. or.: Tasiusak.

Geogr. distribution: Spitsbergen, Iceland, The Færöes, Norway.

Agarum (Bory) Post. et Rupr.

42. **A. Turneri** Post. et Rupr., K. Rosenv. Grl. Havalg. p. 841, Deux. Mém. p. 50.

All the specimens I have had for examination are small; the stipe of the largest one is 15 cm. long, the lamina 50 cm. The species was gathered in May and June in a depth of 3—9 fathoms. According to a report from Kruuse it was found —

but only small specimens, 3 feet long — at Ikerasak mingled with a luxuriant vegetation of *Laminaria*, in a very rapid current, sheltered by a sea cliff, where no drift ice would normally appear. According to C. Kruuse's statement the species is common.

Gr. or.: Kap Dan, Tasiusak, Ikerasak.

Laminaria Lam.

43. **L. digitata** (L.) Lam., K. Rosenv. Deux. Mém. p. 51.

44. **L. nigripes** J. Ag., emend. K. Rosenv. Grl. Havalg. p. 842. *β* **atrofulva** (J. Ag.) K. Rosenv. l. c.

Of this variety a few smaller specimens have been gathered with the lamina undivided or divided in two parts, besides one large specimen with much longer stipe than stated by Rosenvinge. The stipe is terete; only at the upper end, where it merges into the lamina, it is a little broader and somewhat compressed, 40 cm. long. The lamina is 115 cm. long, divided in two lobes, almost equally broad — the greatest breadth 43 cm.; only the inferior portion of the lamina, 13 cm. long, is undivided. The plant is changing the lamina, and the remainder of the old lamina is 60 cm. long. A circle of dense, radially elongated, muciparous canals fully agreeing with Rosenvinge's description is found in the stipe, most often very near the surface, so as to be frequently covered of but a single layer of cells. The large specimen belongs to f. *cucullata*, it grew in Ikerasak, on a steep rocky wall, sheltered by a sea cliff, and mingled with a luxuriant vegetation of Laminaria, in a very rapid current, where no drift ice would normally appear. In a depth of 3—5 fathoms. Gathered in June, changing the lamina.

Gr. or.: Ikerasak, Nualik.

45. **L. longicruris** De la Pyl., K. Rosenv. Grl. Havalg. p. 845, Deux. Mém. p. 52.

This species is formerly known from a single place, Ang-

magsalik (K. Rosenv. Deux. Mém. l. c.) on the eastern coast of Greenland. In Kruuse's collection only a small, young specimen was found which I have referred to this species, although with some doubt. The stipe was almost solid, but the middle layer in several places consisted of a very loose tissue, and small cavities were already formed here and there; thus the stipe is evidently growing hollow. Muciparous canals abundant in the stipe, in a peripherical circle. Sterile, gathered in June, in a depth of 3—30 fathoms. Kruuse's specimen also was gathered in Angmagsalik.

As to the occurrence of this species in East Greenland, north of Angmagsalik C. Kruuse has given me the following information: «*Laminaria longicruris* has not been gathered nor seen by me anywhere (north of Angmagsalik) in East Greenland. In spite of numerous examinations I never found a *Laminaria* with hollow or inflated stipe, neither have I seen any such drifting or driven ashore, though otherwise it is not unfrequently seen drifting about the territory of its distribution».

Gr. or.: Tasiusak.

46. **L. groenlandica** K. Rosenv. Grl. Havalg. p. 847, Deux. Mém. p. 53.

The species is abundantly represented in the collection, and all the specimens are typical, fully agreeing with the description (K. Rosenv. Grl. Havalg. l. c.). The following measures show the size of the specimens, in centimeters.

	soaked	dried								
Stipe	....	53	40	19	35	15	16	6	23	6
Lam. length	150	150	100	100	90	65	60	40	70	45
Lam. greatest breadth	80	70[1])	62	42	35	17	14	15	35	9
Sorus length	....	40	80	40	Without Sorus					
Sorus greatest breadth	....	5	20	5						

[1]) In this case the breadth of the lamina was reduced 12,5 % by the drying process.

The species was gathered in May—August and October, with sorus in June and July, in a depth of 3—19 fathoms. At Ikerasak it grew in a luxuriant vegetation of *Laminaria*, on a steep rockside, in very rapid current, sheltered by a sea cliff, where no drift ice would normally appear. According to a statement from C. Kruuse the species is common in sheltered places in East Greenland.

Gr. or.: Tasiusak, Ikerasak, Tiningnekelak, Kangerdlugsuatsiak.

47. **L. saccharina** (L.) Lam. δ. **grandis** Kjellm. Handbok p. 25.

The size of the dried specimens that we have for examination is in centimeters as follows:

Stipe	80	123	80	80	80	130	67	66	96
Length of the young lamina	59	90	60	40	70	50	71	68	74
» » the old lamina	..	...	..	..	60	...	40	46	..
Greatest breadth of the young lamina	37	30	45	30	40	30	30	32	22
Sorus { length	..	...	..	..	37	...	..	30	..
Sorus { greatest breadth	..	...	..	..	4	...	..	7	..

The lamina of most of the specimens is broadest below the middle, oblong-ovate; but sometimes the greatest breadth of the lamina is in the middle, and its shape is narrowly elliptical, or the lamina is almost equally broad and linear-lanceolate. The base of the lamina is generally broadly cuneate, sometimes narrowly cuneate or rounded, and in some cases it shows a disposition to the cordate form. The sorus occupies the middle of the lamina in its whole length except the basal part, it is narrow, almost equally broad, or its greatest breadth is in the inferior part, or sometimes in the middle, and then its form is elliptical. The lamina is thin, and its transverse section agrees with Kjellman's description; the middle portion is destitute

of rugæ and a little thicker than the undulate marginal part. The stipe is relatively thin and 60—130 cm. long.

The narrower specimens with lanceolate lamina remind partly of *L. saccharina* var. *glacialis* Kr. Rosenv. (Deux. Mém. p. 53), partly of the main form of *δ. grandis* Kjellm., while the broader plants with ovate lamina of all described forms of *Laminaria saccharina* mostly resemble *δ. grandis* f. *latifolia* Kjellm. (Handb. p. 26, *Laminaria saccharina* f. *latissima* Kjellm. Arct. Alg. p. 230), and only seem to differ from the latter in this, that the lamina does not attain so large a breadth, and consequently also in this, that the base does not appear so markedly cordate.

The specimens were gathered changing the lamina and with sorus in July, in a depth of 3—8 fathoms, both in sheltered localities, in rapid current, and on open shore.

Gr. or.: Turner Sund, Kap Borlase Warren, Sabine Ö.

48. **L. solidungula** J. Ag., K. Rosenv. Grl. Havalg. p. 850, Deux. Mém. p. 57.

The species is considerably varying in size and in the form of the lamina. The shorter specimens are 6,5 cm. long and sterile; they are evidently very young plants, 1—2 years old. The larger specimens are 250 cm. long, evidently perennial plants. Many of the specimens have a lamina divided in four parts (one in 5), dating from different years. In the oldest, and often in two of the oldest portions an opening is found of the same shape as the sorus, and in its place in the lamina; in the one year old portion of the lamina, and often also in the oldest portion but one, the place where the sorus was found is clearly marked from the other portion by its whitish colour and its greater transparency. The sorus is generally ovate, or oblong-ovate, or oval-elliptical in the basal part of the lamina as described by J. Agardh (Spetsb. Alg. p. 3) and Kjellman (Spetsb. II, p. 16); but in two cases I have met with a different form of

sorus. In one case the sorus occupied the middle of the upper part of the young lamina, and only the lower third of the lamina was sterile; the sorus was however not continuous in its whole length; it was about 50 cm. long, its greater breadth 5 cm.; its smaller breadth 2 cm. In the other case the one year old lamina, 70 cm. long, had a linear sorus 65 cm. long and 6 cm. broad; it was almost equally broad in its whole length, only narrowing off a little upwards. A similar form of sorus seems to be mentioned by Kjellman (Spetsb. II, p. 17) and by Rosenvinge (Deux. Mém. l. c.). The form of the lamina[1]) varies as mentioned by Kjellman (Spetsb. II, p. 16) from the almost circular to the lanceolate form. In young specimens we frequently meet with a lingulate apex in the young lamina, some-

Fig. 2. *Laminaria solidungula* J. Ag. Two dried specimens photographed by E. Warming, showing the lamina divided in four parts, dating from different years. In the three years old portion an opening indicates the place of sorus.

[1]) By lamina is meant here the portion of the lamina developed in a single year.

times not at all separated from the latter by a constriction. J. Agardh calls this lingulate apex ligula, and he considers it a part of the young lamina. It is scarcely correct to explain «the ligula» in this way, as no ligula at all is found in very young specimens in their first year. I am of the opinion that the ligula always is the remainder of an older lamina, and the constriction occurs with age, as the breadth of the lamina increases.

Judging by what I have seen in young specimens from Greenland it seems justifiable to suppose that the plant does not produce any sorus for the first 2 (or 3) years of its life.

The length of its stipe naturally varies according to the age of the plant; the longest stipe was 80 cm. long. In order to show the size of some of the specimens of which the lamina dates from the fourth year (in a single case the lamina dates from the second year), the following measures are given in centimeters:

Total length	Stipe	The length and the breadth of the laminæ							
		a		b		c		d	
		length	breadth	length	breadth	length	breadth	length	breadth
219	50	44	23	46	30	49	30	30	..
209	34	60	29	50	25	40	24	25	15
245	60	46	20	62	25	47	20	30	15
190	80	60	23	50	21	..	..	..	..

In this table **a** indicates the young lamina; **b** is one year, **c** two, and **d** three years old.

The specimens were collected in a depth of 3—10 fathoms both on open shore and in sheltered locality in rapid current. Smaller specimens were found at Ikerasak in a rich vegetation of Laminaria sheltered by a sea cliff, where no drift ice would normally appear. The species was collected in June and July, with sorus in the young lamina in June. In many of the

specimens the young lamina has not yet reached its normal size. The specimens with old laminæ were found at Turner Sund and Kap Borlase Warren. The species is commonly distributed, according to Kruuse's statement.

Gr. or.: Tasiusak, Ikerasak, Turner Sund, Kap Borlase Warren, Sabine Ö.

Saccorhiza De la Pyl.

49. **S. dermatodea** (De la Pyl.) J. Ag., K. Rosenv. Grl. Havalg. p. 850, Deux. Mém. p. 57.

The specimens were gathered sterile in May—July; there are both large and small specimens; especially those gathered in Tiningnekelak in the current place (up to two fathoms of water, no drift ice) are of considerable size. The largest specimens measured in centimeters, in dried condition, give the following measures:

Total length	Stipe	The lamina length	The lamina breadth
320	40	280	15
115 +	25	90 +	26

Gr. or.: Kap Dan, Tasiusak, Tiningnekelak.

Fam. *Chordaceæ.*

Chorda (Stackh.).

50. **Ch. Filum** (L.) Stackh., K. Rosenv. Grl. Havalg. p. 853, Deux. Mém. p. 57.

Several fragments of this species, the largest one 80 cm. long, were gathered sterile in Septemher.

Gr. or.: Tasiusak (Kilitilik).

Fam. *Chordariaceæ.*

Chordaria (Ag.).

51. **Ch. flagelliformis** (O. F. Müll.) Ag., K. Rosenv. Grl. Havalg. p. 854, Deux. Mém. p. 58.

Gathered with sporangia in September. The largest specimen 17 cm. long.

Gr. or.: Tasiusak, Ödesund.

Fam. *Desmarestiaceæ.*

Desmarestia Lam.

52. **D. aculeata** (L.) Lam., K. Rosenv. Grl. Havalg. p. 857, Deux. Mém. p. 59.

The species was gathered in May—July. The specimens gathered in May are richly supplied with hairs. On the contrary only a few plants of a gathering from June had a small number of hairs.

It was found in a depth of 3—20 (—30) fathoms, both in exposed and sheltered places.

Gr. or.: Kap Dan, the estuary of the Kalerajuek near Kap Dan, Tasiusak, Tiningnekelak, Turner Ö, Sabine Ö.

var. **media** (Ag.) J. Ag., K. Rosenv. Grl. Havalg. l. c.

Of this variety a few specimens were gathered in July; hairs abundant; they perfectly agree both with the specimens mentioned by Rosenvinge (l. c.) and with the Færöes specimens (Börgesen, Fær. Alg. p. 445). Gathered on open shore, in a depth of 11 fathoms.

Gr. or.: Kap Borlase Warren.

53. **D. viridis** (O. F. Müll.) Lam., K. Rosenv. Grl. Havalg. p. 859, Deux. Mém. p. 60.

The length of the specimens varies from 3—40 cm., they were all gathered in July, and in some of them hairs are abundant. The species was found both in exposed and sheltered places, in a depth of 3—11 fathoms.

Gr. or.: Turner Sund, Kap Borlase Warren, Sabine Ö.

Fam. *Dictyosiphonaceæ.*

Dictyosiphon Grev.

54. **D. foeniculaceus** (Huds.) Grev., K. Rosenv. Grl. Havalg. p. 859, Deux. Mém. p. 60.

The specimens are up to 50 cm. long; they were collected in July and August; with sporangia in August. In the upper sublittoral region.

Gr. or.: Tiningnekelak, Kangerdlugsuatsiak.

Coilodesme Strömf.

55. **C. bulligera** Strömf., K. Rosenv. Grl. Havalg. p. 862, Deux. Mém. p. 61.

Fam. *Punctariaceæ.*

Phyllitis Kütz.

56. **Ph. fascia** (O. F. Müll.) Kütz., K. Rosenv. Grl. Havalg. p. 862.

The species was gathered in a single place. The specimens are 15 cm. long and 2—3 cm. broad; one specimen even reaches a breadth of 7 cm. The margin is often slightly undulate.

Gathered sterile in May, in a depth of 5—19 fathoms.

Gr. or.: Tasiusak.

Delamarea Har.

57. **D. attenuata** (Kjellm.) K. Rosenv. Grl. Havalg. p. 865, Deux. Mém. p. 63.

Scytosiphon (Ag.).

58. **S. lomentarius** (Lyngb.) J. Ag., K. Rosenv. Grl. Havalg. p. 863, Deux. Mém. p. 62.

var. **typica** K. Rosenv. Grl. Havalg. l. c.

Some typical specimens 10 cm. long and 0,5—1 mm. broad were gathered with young sporangia in June. Some of the fructiferous plants were destitute of paraphyses (comp. K. Rosenv. Deux. Mém. l. c.).

var. **complanata** K. Rosenv. Grl. Havalg. l. c.

Some typical specimens up to 40 cm. long and 2—4 mm. broad were gathered with sporangia in June and July.

Gr. or.: Ikerasak, Tiningnekelak.

Symphyocarpus K. Rosenv.

59. **S. strangulans** K. Rosenv. Deux. Mém. p. 67.

Stictyosiphon Kütz.

60. **S. tortilis** (Rupr.) Reinke, K. Rosenv. Grl. Havalg. p. 868. Deux. Mém. p. 70.

The specimens I have had for examination are up to 17 cm. long; they were gathered in June—August; with unilocular sporangia in July—August. Specimens from August are richly supplied with hairs.

Gr. or.: Kap Dan, Tiningnekelak, Ödesund, Kangerdlugsuatsiak, Turner Sund, Kap Borlase Warren.

Isthmoplea Kjellm.

61. **I. sphærophora** (Harv.) Kjellm., K. Rosenv. Grl. Havalg. p. 881, Deux. Mém. p. 75.

Some sterile, loose specimens growing together with *Stictyosiphon tortilis* and *Pylaiella littoralis* were gathered by N. Hartz in a hole in the ice on the lagoon, north of Kap Dalton.

Gr. or.: Kap Dalton.

Punctaria Grev.

62. **P. plantaginea** (Roth) Grev., K. Rosenv. Deux. Mém. p. 71.

Omphalophyllum K. Rosenv.

63. **O. ulvaceum** K. Rosenv. Grl. Havalg. p. 872, Deux. Mém. p. 73.

A small fragment of this species was found among the haptera of *Polysiphonia arctica*.

Gr. or.: Kap Borlase Warren.

Geogr. distribution: Jan Mayen, Iceland, Miquelon near New Foundland.

Fam. *Elachistaceæ.*

Elachista Dub.

64. **E. fucicola** (Vell.) Aresch., emend. K. Rosenv. Grl. Havalg. p. 78, Deux. Mém. p. 74.

α. **typica.**

Gathered with unilocular sporangia in June and September.

Gr. or.: Smalsund.

β. **lubrica** (Rupr.) K. Rosenv.

Gathered with unilocular sporangia in May and June. In one specimen gathered in May plurilocular sporangia were found both in the lower part of the long assimilative shoots (comp. Rosenv. l. c.) and in the upper part of the short assimilative shoots. It has been gathered in a depth of up to 19 fathoms and grows on *Halosaccion ramentaceum*, *Saccorhiza dermatodea* and on the stipes of species of *Laminaria.*

Gr. or.: Tasiusak, Ikerasak.

Leptonema Rke.

65. **L. fasciculatum** Rke., Elachista fasciculata K. Rosenv. Deux. Mém. p. 75.

var. **subcylindrica** K. Rosenv. Grl. Havalg. p. 879.

Was found together with *Pylaiella* on a stipe of *Laminaria*, sterile filaments 7—12 μ thick, fructiferous filaments 11—15 μ. In almost all the filaments plurilocular sporangia were abundant; these sporangia are often more prominent than usual in this variety. Gathered in May.

Gr. or.: Tasiusak.

Fam. *Ectocarpaceæ.*

Ectocarpus Lyngb.

Subgen. Pylaiella (Bory).

66. **E. littoralis** (L.) Lyngb., K. Rosenv. Grl. Havalg. p. 881. Deux. Mém. p. 75.

var. **opposita** Kjellm.

This variety is the most frequent in the collection and according to a statement from Kruuse it is common in East Greenland. The largest specimens are 30 cm. long. It was gathered in May—September; in June, July and September with unilocular, in June and July with plurilocular sporangia; in a depth of 1—3 (—30) fathoms.

Gr. or.: Kap Dan, Tasiusak, Ikerasak, Kangarsik, Tiningnekelak, Angmagsivik, Smalsund, Kangerdlugsuatsiak, Nualik.

var. **divaricata** Kjellm. forma.

Grows on *Fucus inflatus*. The filaments are densely entangled, so as to produce a habitual resemblance with *Ectocarpus tomentosus*. The thickest main branches were 19—23 μ thick. The branches are frequently incurved and not rarely slightly hooked at the apex which often ends in a hairlike point. I have seen a single plurilocular sporangium terminal on a long branch, 196 μ long, 22 μ thick at the base and 17 μ at the top. Gathered in the littoral region in August.

It seems to me that this form is very much like f. *prætorta* Kjellm. (Handbok p. 85) which is only known from the Baltic; but whether they are identical I am not able to decide.

Gr. or.: Polhems Dal in Kong Oskars Fjord.

var. **varia** (Kjellm.) Kuck. f. **typica** Kuck., Pylaiella varia Kjellm.

Typical specimens have been gathered, some loose, and some others attached to stipes of Laminaria, in a depth of up to 5 fathoms. Gathered in June and July with unilocular sporangia.

Gr. or.: Ikerasak, Tiningnekelak.

Subgen. Euectocarpus Hauck.

67. **E. siliculosus** (Dillw.) Lyngb., K. Rosenv. Grl. Havalg. p. 882.

Some specimens of this species were gathered in September; they attain a thickness of 55 μ and have only plurilocular sporangia which are 188 μ long and 43 μ broad.

Gr. or.: Tasiusak.

68. **E. confervoides** (Roth) Le Jol., K. Rosenv. Grl. Havalg. p. 883, Deux. Mém. p. 76.

Gathered in June with plurilocular sporangia. The specimens reach a thickness of 33 μ. Was found together with *Acrosiphonia* and *Pylaiella.*

Gr. or.: Angmagsivik.

69. **E. pycnocarpus** K. Rosenv. Grl. Havalg. p. 886.

The plants I with some doubt refer to this species are up to 10 cm. long; in dried condition their colour is brownish green; they have a distinct main axis, and towards the apex the branches are somewhat bunched. The end of the younger branches is often hairlike. Young unilocular sporangia are found; they are mostly destitute of stalks, often unilateral, but also often scattered. The cells are much shorter than they are broad, and in this respect the plants are perfectly like *E. pycnocarpus.* Though the characteristic position of the sporangia of *E. pycnocarpus* (K. Rosenv. l. c. fig. 23 B, C) is not found in these plants, I still refer them to this species, as by examinating the original specimen I have met with branches with young unilocular sporangia of the same appearance and position as the above mentioned plants.

As my material is in dried condition like all the material of *E. pycnocarpus*, no definite statement can be given as to the form and number of the chromatophores.

Gathered in June with young unilocular sporangia.

Gr. or.: Ikerasak.

70. **E. ovatus** Kjellm. v. **tenuis** K. Rosenv. Deux. Mém. p. 77.

The specimens collected at Kap Borlase Warren perfectly agree with Rosenvinge's description; it only ought to be mentioned that specimens without branches or only furnished with a few branches, and with plurilocular sporangia mostly not opposite but unilateral, are frequent in the collection. Such specimens are identical with *E. Holmii* (K. Rosenv. Grl. Havalg.

p. 889) and might be called f. *Holmii*, as mentioned by Rosenvinge (Deux. Mém. l. c.), as they are connected with the typical var. *tenuis* by intermediate forms.

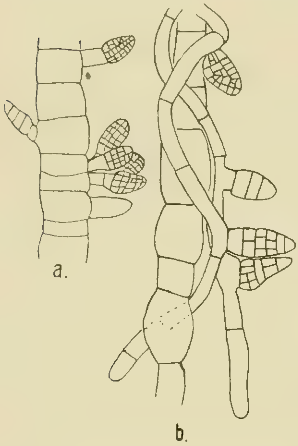

Fig. 3. *Ectocarpus ovatus* Kjellm. a a fragment of a filament with irregularly placed plurilocular sporangia showing to the right a group of sporangia. 168 : 1. b a fragment of a filament with rhizoids showing the plurilocular sporangia of the rhizoids (compare the text). 276 : 1.

The specimens gathered in Angmagsalik (in May?) were 43 μ thick in the lower part of the frond and thus remind of the typical form of *E. ovatus.* The plurilocular sporangia were frequently opposite, but scattered or terminal sporangia also occurred. Sometimes the plurilocular sporangia were found several together in a small group (compare Fig. 3 a). The rhizoids which were abundant at the base of the plants were frequently furnished with plurilocular sporangia in large number as shown in my figure (Fig. 3 b).

Gathered in (May? and) July with plurilocular sporangia.

Gr. or.: Angmagsalik, Kap Borlase Warren.

Subgen. Streblonema (Derb. et Sol.).

71. **E. æcidioides** K. Rosenv. Deux. Mém. p. 80.

72. **E. helophorus** K. Rosenv. Deux. Mém. p. 82, Fig. 17.

In the frond of *Petrocelis polygyna* I have met with sterile filaments of a brown alga, perfectly agreeing with the description and figures of this species. But my material did not give any further information as to this interesting alga.

Gathered sterile in July.

Gr. or.: Stenö.

Microsyphar Kuck.

M. Polysiphoniæ Kuck. Beiträge p. 29.

Was found in the outer walls of *Polysiphonia urceolata* which was mingled with *Sphacelaria radicans*, growing on the under side of beetling rocks.

Gr. occ.: Ivigtut (L. K. R.).

Geogr. distribution: Iceland, The Færöes, Scotland, Helgoland.

Fam. *Myrionemaceæ.*

Myrionema.

73. **M. globosum** (Rke.) Fosl. Phycocelis globosus K. Rosenv. Deux. Mém. p. 86.

Ralfsia Berk.

74. **R. deusta** (Ag.) J. Ag., K. Rosenv. Grl. Havalg. p. 899, Deux. Mém. p. 93.

75. **R. clavata** (Carm.) Farl., K. Rosenv. Deux. Mém. p. 94.

Sorapion Kuck.

76. **S. Kjellmani** (Wille) K. Rosenv. Deux. Mém. p. 95; Lithoderma Kjellmani Wille, K. Rosenv. Grl. Havalg. p. 902.

On *Chætomorpha Melagonium.* Gathered sterile in July.

Gr. or.: Tiningnekelak.

Lithoderma Aresch.

77. **L. fatiscens** (Aresch.) emend. Kuck., K. Rosenv. Deux. Mém. p. 97, Grl. Havalg. p. 901.

Abundant on stones having been fastened to the haptera of species of *Laminaria.* The specimens fully agree with K. Rosenvinge's description and figure (Deux. Mém. l. c. fig. 22). The filaments are 10—14 μ thick. Gathered in July; with young unilocular sporangia in July, in a depth of 3—8 fathoms.

Gr. or.: Kap Dalton, Turner Sund, Kap Borlase Warren, Sabine Ö.

Fam. *Sphacelariaceæ.*

Chætopteris Kütz.

78. **Ch. plumosa** (Lyngb.) Kütz., K. Rosenv. Grl. Havalg. p. 903, Deux. Mém. p. 99.

According to a statement from Kruuse this species is common in East Greenland; it grows gregariously, and from some of its habitats it has been gathered in great numbers. It was collected in a depth of up to 20 fathoms; the largest plants are 10 cm. long. All the specimens gathered in May—September are sterile, but the stalks of the sporangia from earlier years seem to be persistent, as they cover the older branches with a dense felt, as mentioned by Rosenvinge (l. c.).

Gr. or.: Kap Dan, Tasiusak, Ikerasak, Stenö, Ödesund, Kangerdlugsuatsiak, Nualik, Kap Borlase Warren, Sabine Ö.

Sphacelaria Lyngb.

79. **S. racemosa** Grev. var. **arctica** (Harv.) Rke., K. Rosenv. Grl. Havalg. p. 904, Deux. Mém. p. 100.

The species is surely common in East Greenland. It was gathered in the littoral region and in the sublittoral region in May—September, in a depth of up to 5 fathoms (in a single case a depth of 3—30 fathoms was stated). The specimens are up to 3 cm. long, and they are almost all sterile, only in a few specimens gathered in June, emptied unilocular sporangia were found; they were mostly terminal on monosiphone branches, but sometimes they were found several together on polysiphone branches, which is in perfect agreement with Rosenvinge's description in Deux. Mém. (l. c.).

Gr. or.: Kap Dan, Tasiusak, Smalsund, Moræneö, Stenö, Kap Dalton, Turner Sund.

S. radicans Harv., Sauvag. Sphacelaria p. 56; S. olivacea K. Rosenv. Grl. Havalg. p. 904 ex parte.

Only sterile specimens, destitute of hairs, growing on the

under side of beetling rocks and on the shell of a crab in a depth of 4—5 fathoms.

Gathered in June and July.

Gr. occ.: Christianshaab (N. H.), Ivigtut (L. K. R.).

Geogr. distribution: Iceland, Scotland, Ireland, Britain, Kattegat, Helgoland, Normandy, Bretagne.

80. **S. britannica** Sauvag. Sphacelaria p. 66; S. olivacea K. Rosenv. Grl. Havalg. p. 904 ex parte.

The Greenlandic specimens are perfectly typical and fully agreeing with Sauvageau's description (l. c.). Both the specimens from West Greenland and those from East Greenland were gathered in July, and are sterile. The plants from West Greenland grew in the littoral region in rock-clefts; the specimens from East Greenland were found on stones together with *Lithoderma*.

Sauvageau (l. c. p. 69) who founds his opinion on the informations given by Rosenvinge (l. c.) as well as on the examination of Giesecke's specimens in Thuret's herbarium, declares *S. olivacea* from Greenland to be identical with *S. britannica*. It has however been proved by an examination of the Greenlandic material that the specimens referred by Rosenvinge to *S. olivacea* really do belong to two species: *S. radicans* Harv. and *S. britannica* Sauv.

The specimens of Lyngbye's herbarium mentioned by Rosenvinge (l. c.) were gathered in Greenland by Giesecke but are without any statement as to their habitats; they mostly belong to *S. britannica*, but filaments of *S. radicans* are however frequently found mingled with *S. britannica*.

Gr. occ.: Sukkertoppen (L. K. R.).

Gr. or.: Kap Dalton.

Geogr. distribution: Iceland, The Færöes, Scotland.

C. Chlorophyceæ.

Fam. *Phyllosiphonaceæ.*

Ostreobium Born. et Flah.

81. **O. Queketti** Born. et Flah., K. Rosenv. Deux. Mém. p. 101.

Fam. *Gomontiaceæ.*

Gomontia Born. et Flah.

82. **G. polyrrhiza** (Lagerh.) Born. et Flah., K. Rosenv. Deux. Mém. p. 101.

Fam. *Cladophoraceæ.*

Acrosiphonia (J. Ag.).

The genus *Acrosiphonia* is here defined as proposed by Wille[1]) and includes only species with many nuclei in each cell. Thus defined the genus is identical with the subgenus *Melanarthrum* (Kjellman, Acrosiphonia p. 50). It has already been pointed out (Börgesen, Fær. Alg. p. 506, Jónsson Icel. Alg. p. 367), that Kjellman's division of the subgen. *Melanarthrum* into sections is untenable, at all events it may be regarded as fully demonstrated that the section I, *Speirogonicæ*, and section II, *Zoniogonicæ*, are to be considered as one. In the Greenlandic species of this genus the sporangia certainly mostly occur singly or two or three together, but 5—7 sporangia in a continuous row are not rare. Thus the Greenlandic material seems further to show that the above named sections are to be considered as one. Species with spinous branches did not occur in the Greenlandic collections.

The Greenlandic species are easily distinguishable by the following key:

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[1]) Botaniska Notiser 1899, p. 281.

A. Without terminal sporangia.
  a. with incurved branches .... *A. incurva.*
  b. without incurved branches ...... *A. hystrix.*
B. With terminal sporangia .... *A. penicilliformis.*

83. **A. incurva** Kjellm., Acrosiphonia p. 61, Cladophora (Spongomorpha) arcta α. typica and β. pulvinata K. Rosenv. Grl. Havalg. p. 907.

The Greenlandic specimens are 2—6 cm. high and 130—170 μ thick. The sporangia occur singly, two or three together, or up to 7 in a row. Incurved branches occur, but rather rarely. The lower part of the main axis of young plants terminates in an axile rhizoid, which dies off, as the plants grow older and the number of lateral rhizoids increases; in many cases it is replaced by a new axile rhizoid of intra-matrical origin, but usually the old specimens show the lower end of the main axis dying off. The lower end of the rhizoids is generally considerably enlarged, and often irregularly branched; sometimes these branches are well developed stolons, emitting erect filaments. The rhizoids are as a rule densely entangled below, as the branches or lobes of the basal cells work into each other. The apex of rhizoids not touching the substratum is not enlarged but incurved or hooked, and may be considered as a kind of prehensile organ.

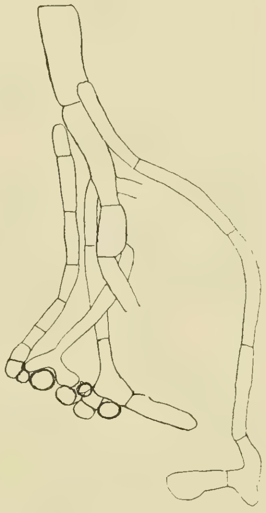

Fig. 4. *Acrosiphonia incurva* Kjellm.
A basal portion of a plant showing the lower end of the main axis dying off and lateral rhizoids with their widened and branched basal cells. To the left a stolon emitting an erect filament is to be seen. 25 : 1.

Injured rhizoids, the lower part of which is dying off or has been thrown away, are in many cases renewed by an

iterated division of the lowest living cell, and the new part of the rhizoid is distinctly marked from the old one by a sheath formed by the remaining walls of a dead cell. In the same way the uppermost branches, when injured, are renewed by an iterated division of the uppermost living cell, and the lower end of the young branch is enclosed in a sheath of a dead cell. Sometimes more than one sheath is to be seen in the young branch showing that the branch has been repeatedly renewed. The young branches produced in this manner are usually considerably narrower than the older part of the branch and often highly resemble flagelliform branches; consequently the occurrence of flagelliform branches is of a doubtful value as a specifically distinctive character. Such renewed growth of the branches is certainly sometimes produced in the manner, that the uppermost part of a branch above some emptied sporangia is thrown off, and the cell next to the emptied sporangia forms a new apex by iterated division, but in most cases it is produced in the way, that the uppermost part of the branches injured by the air during the ebb dies off and grows out again as milder environmental influences play upon it. This is concluded from the frequent occurrence of renewed growth in the branches of young, sterile specimens. Such renewed growth of branches and rhizoids is before described in *Acrosiphonia flabelliformis* (Jónsson Icel. Alg. p. 371, fig. 16 a, fig. 17 b-e).

Regarding the structure of the chromatophore the Greenlandic specimens fully agree with the Icelandic plants (Jónsson Icel. Alg. p. 368), and the largeness of the meshes of the chromatophore is, I think, not to be relied upon as a specifically distinctive character. As *A. incurva* Kjellm. differs from *A. centralis* (Lyngb.) Kjellm., only by the largeness of the meshes of the chromatophore, I think that on further investigation they will turn out to be identic, and in that case the older name, *A. centralis* (Lyngb.) Kjellm., should be used.

Some rather peculiar specimens have been collected by

J e s s e n at the northern side of Sermersok. They form tufts 1—2 cm. high, incurved branches are rather frequent, and the sporangia occur singly. On the whole the specimens mostly agree very well with *A. incurva*, but they differ from it by the occurrence of rhizoids in the uppermost part of the frond and by having the branches of last order sometimes given off at right angles. The rhizoids occur somewhat irregularly in the

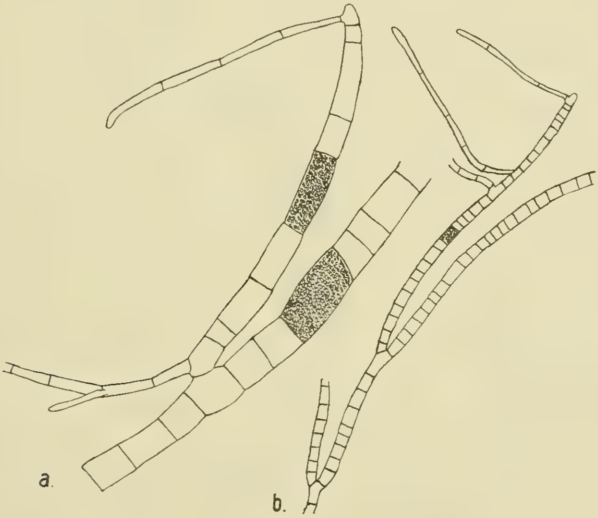

Fig. 5 *Acrosiphonia incurva* Kjellm.

Two fragments of the specimens from Sermersok. Compare the text.

a contains two singly occurring sporangia; the branch to the left shows at the base a normal rhizoid, at the apex an abnormally developed one. 47 : 1.

b shows a single sporangium and abnormally developed rhizoids becoming branches. 13 : 1.

uppermost part of the frond, and sometimes shoots from the upper ends of the cells, that is shoots which should have been branches, are developed as rhizoids, and vice versa, shoots from the lower ends of the cells, that is shoots which should have been rhizoids, are developed as branches. Fragments of main branches with young branches and young rhizoids occur loosely

entangled. These fragments doubtlessly give rise to new plants. On the whole the upper part of the frond of these specimens is frangible and consists of many loosely interwoven fragments between the main branches. On account of the loose condition of the frond the fragments probably have changed their position in proportion to the direction of the light, and thus branches have become rhizoids and rhizoids branches.

Specimens collected by Rosenvinge at Godthaab in a depth of 5 fathoms, entangled between Desmarestia aculeata are analogous to the f. *debilis* of *A. hystrix*. These specimens have certainly been removed from the coasts by the current, and afterwards thrown down to the bottom of the sea and entangled between the Desmarestia.

The specimens determined by Rosenvinge as *Cladophora arcta* f. *pulvinata* (l. c.) are rather young, gregariously growing plants of *A. incurva*.

The species is littoral, it has only seldom been collected at low-water mark and occasionally in the upper part of the sublittoral region. It was collected in February—March and May—August, with sporangia in June—August.

The species seems to be common in West Greenland.

Gr. occ.: Umanak (Sören Hansen); Atanikerdluk, Ujaragsugsak (N. H.); Godhavn (L. K. R.); Orpigsuit near Christianshaab (N. H.); Sukkertoppen, Ny Hernhut (L. K. R.); Godthaab (Vahl, L. K. R.); Island near Frederikshaabs Glacier, Frederikshaab, Smallesund (L. K. R.); Neriak (N. H.); Ivigtut (L. K. R.); Sermilik Fjord (A. Jessen); Ataneritsok (Igaliko) (L. K. R.); Kakortok (Vahl); Kagsimiut, Julianehaab (L. K. R.); Sardlok, Umanartut, the northern side of Sermersok (A. Jessen); Tasermiut prope Korsoak, Nanortalik (Vahl).

Gr. or.: Ikerasak, Angmagsivik, Smalsund, Nualik.

Geogr. distribution: Iceland, The Færöes, Norway.

84. **A. hystrix** (Strömf.), Jónsson Icel. Alg. p. 368; Spongomorpha hystrix Strömfelt, Om algvegetationen vid Islands kuster

p. 54; Cladophora (Spongomorpha) arcta γ. hystrix, K. Rosenv. Grl. Havalg. p. 907.

The Greenlandic specimens are 4—15 cm. high and the thickness of the upper branches is varying from 200—500 μ. The sporangia mostly occur singly or two or three together, but up to 6 sporangia in a continuous row are not rare. Neither spinous, nor hooked or incurved branches are met with. The tufts are loose and almost not entangled [in f. *typica*] or somewhat entangled at the base As in other species of *Acrosiphonia* the main branches are much narrower below than above. As in *A. incurva* the main axis of young plants terminates in an axile rhizoid, which afterwards dies off; sometimes it is replaced by a new axile rhizoid, but in older plants the lower end of the main axis usually dies off. Lateral rhizoids are rare in the typical form, but rather frequent in the f. *littoralis*; they never occur in such quantities as in *A. incurva*. The lowest rhizoids are often unilaterally placed while the upper rhizoids are opposite, alternate or scattered. The basal cell of the rhizoids is usually considerably enlarged, it is lobed or irregularly branched and sometimes it emits stolons from which erect filaments arise. Renewed growth of injured rhizoids and branches as described in *A. incurva* (p. 43—44) also occurs in this species. The young apices of the branches produced in this manner sometimes resemble flagelliform

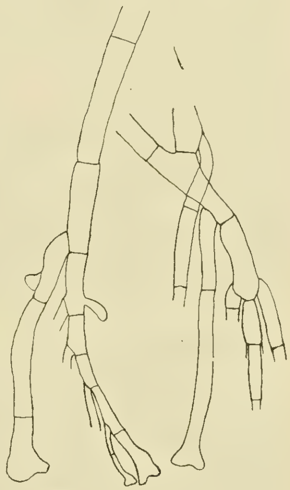

Fig. 6. *Acrosiphonia hystrix* (Strömf.).
a the basal portion of a young specimen showing an axile rhizoid and mostly secund lateral rhizoids. 47 : 1.
b the basal portion of an older plant showing an axile rhizoid produced by renewed growth dying off, besides both opposite and scattered lateral rhizoids. 47 : 1.

branches. The Greenlandic material of this species agrees well with the Icelandic plants (Jónsson l. c.) and three forms connected with numerous intermediate forms are distinguishable.

f. **typica** Jónss. l. c. p. 368.

Large specimens about 7—15 cm. high, and about 300—500 μ thick. only at the base loosely entangled. Occurs in the sublittoral region down to a depth of 7 fathoms.

f. **littoralis** Jónss. l. c. p. 370.

This form is lower than the typical form, 4—about 10 cm. high, and narrower, about 200—300 μ thick, and much more richly entangled in the lower part of the frond. Occurs at low-water mark and in the uppermost part of the sublittoral region.

f. **debilis** K. Rosenv. Grl. Havalg. p. 908.

This form has only been collected loose and entangled between other algæ as *Dictyosiphon foeniculaceus* f. *flaccida* and *Chætomorpha Melagonium*, in sheltered places in a depth of 3—7 fathoms. The specimens are low and 190—260 μ thick. It seems to be most closely related with the f. *littoralis* from which it differs especially by the peculiar, often unilateral branching (cfr. Rosenvinge's description l. c.).

The species was collected in May—August, with sporangia in June—August. It grows in the littoral region near low-water mark, and in the sublittoral region down to a depth of 7 fathoms. It mostly occurs on stones and rocks, but occasionally also on different algæ.

The species is presumably common in West Greenland.

Gr. occ.: Upernivik (L. K. R.); Sarkak in Vajgat, Unartok in Vajgat, Ujaragsugsak in Vajgat, Klokkerhuk (N. H.); Godhavn (L. K. R.); Agto (Sörensen); Tatsip-ata (N. H.); Holstensborg (Th. Holm, L. K. R., N. H.); Sukkertoppen (L. K. R.); Godthaab (L. K. R., C. Petersen); Merkuitsok, Fiskernæsset (L. K. R.); Frederikshaab, Nigamiut pr. Frederikshaab, Kvannefjord (N. H); Ivigtut (L. K. R.);

Narsak (L. K. R.); Kagsimiut (H. Lassen); Umanarsuk, Kimatulivigsalik, Kitsigsut Öer (A. Jessen).

Gr. or.: Ikerasak, Tiningnekelak, Angmagsivik, Smalsund, Ödesund, Nualik.

A. penicilliformis (Fosl.) Kjellm., Acrosiphonia p. 80; Cladophora (Spongomorpha) arcta δ. penicilliformis K. Rosenv. Grl. Havalg. p. 908.

I have with some doubt referred a single specimen to this species. Terminal sporangia did not occur, but as the upper part of many branches had died off, I think it probable that the rows of emptied terminal sporangia had been thrown off. Some intercalary sporangia occurring singly have been observed. In other respects the Greenlandic specimen agrees well with this species.

It was collected in July, on rocks in the littoral region.

Gr. occ.: Godthaab (L. K. R.).

Geogr. distribution: Iceland, Norway.

Spongomorpha (Kütz.).

The genus *Spongomorpha* is here defined as proposed by Wille [1]) and thus only includes species with a single nucleus in each cell. Thus defined the genus is identical with Kjellman's subgenus *Isochrous* (Acrosiphonia p. 82).

S. vernalis (Kjellm.), Acrosiphonia vernalis Kjellm., Acrosiphonia p. 82; Cladophora lanosa K. Rosenv. Deux. Mém. p. 103.

This species is known only from one place in Greenland, and the specimens in question have already been mentioned by Rosenvinge (l. c.). Rosenvinge remarks that, before Kjellman's work on *Acrosiphonia* was published, he would certainly have referred the specimens to *Cladophora lanosa*. In a footnote (l. c. p. 103) Rosenvinge points out that these specimens only contain one nucleus in each cell; this is a highly important

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[1]) Botaniska Notiser 1899, p. 281.

statement, as all other *Cladophoraceæ* have many nuclei in each cell. Later on, Wille has shown, that some species belonging to the subgenus *Isochrous* Kjellm. only contain one nucleus in each cell, and I too only found one nucleus in each cell in *Spongomorpha vernalis* (Kjellm.) and *Spongomorpha* sp. from Iceland (Icel. Alg. p. 366).

The Greenlandic species are about 1,5—2 cm. high, about 30 μ thick below, and about 40—50 μ thick above. Hooked and incurved branches occur. The specimens fully agree with the description and figures (l. c. Tab. V) given by Kjellman, and the only difference is, that the Greenlandic plants are somewhat thicker than the plants described by Kjellman. The specimens are sterile, and were collected in July in a littoral pool, 15—20 feet above the level of the sea.

Gr. occ.: The rock Nunanguak west of Umanak 60° 34′ (A. Jessen).

Geogr. distribution: Iceland, Kattegat.

Cladophora (Kütz.).

85. **C. gracilis** (Griff.) Kütz., K. Rosenv. Grl. Havalg. p. 910.

The specimens from East Greenland entirely agree with the West Greenlandic plants referred by Rosenvinge to this species. The plants occurred in company with *Chætomorpha tortuosa*, *Stictysiphon tortilis* a. o. The species was collected in September and had some few sporangia.

Gr. or.: Tasiusak.

Rhizoclonium Kütz.

86. **Rh. riparium** (Roth) Harv., K. Rosenv. Grl. Havalg. p. 913, Deux. Mém. p. 103.

α. **polyrhizum** K. Rosenv. Grl. Havalg. l. c.

The filaments are 17—29 μ thick, in other respects the specimens entirely agree with the description. It was collected in September.

Gr. or.: Angmagsalik, Unartok (in thermal water in the littoral region).

Chætomorpha Kütz.

87. **Ch. tortuosa** (Dillw.) Kleen, K. Rosenv. Grl. Havalg. p. 917, Deux. Mém. p. 104.

It was collected sterile in September in company with *Cladophora gracilis* and *Chætomorpha Melagonium.*

Gr. or.: Tasiusak.

88. **Ch. Melagonium** (Web. et Mohr) Kütz., K. Rosenv. Grl. Havalg. p. 917, Deux. Mém. p. 104.

The species was gathered in May—September in a depth of 1—8 fathoms (f. *typica*) and in the littoral region (f. *rupincola*), both in sheltered and exposed places.

f. *typica.*

The typical form seems to be common.

Gr. or.: Tasiusak, Kangarsik, Ikerasak, Tiningnekelak, Smalsund, Stenö, Ödesund, Kangerdlugsuatsiak, Turner Sund, Sabine Ö.

f. *rupincola.*

The specimens are 9 cm. high and overgrown with Diatoms.

Gr. or.: Nualik.

Urospora Aresch.

89. **U. mirabilis** Aresch., K. Rosenv. Grl. Havalg. p. 918, Deux. Mém. p. 106.

The specimens belong to the typical form. The fructiferous filaments are up to 70 μ thick. The species was collected in June, July and September, with sporangia in June and September. Occurs in company with *Ulothrix flacca* and other species of *Ulothrix.*

Gr. or.: Smalsund, Nualik.

Fam. *Mycoideaceæ.*

Pringsheimia Rke.

90. **P. scutata** Rke., K. Rosenv. Grl. Havalg. p. 924.

It grows on *Chætopteris plumosa* and *Sphacelaria racemosa* and was collected, sterile in August and September.

Gr. occ.: Ivigtut (L. K. R.) on *Sphacelaria racemosa* and *Polysiphonia urceolata.*

Gr. or.: Smalsund, Kangerdlugsuatsiak.

Ulvella Crouan.

91. **U. confluens** K. Rosenv. Grl. Havalg. p. 924, Deux. Mém. p. 109.

This species occurs on the stipe of *Laminaria saccharina* and on the frond of *Rhodymenia palmata* amongst other epiphytes. The plants on the *Laminaria* stipe were sterile and fully resembled the description of the older plants (K. Rosenv. Grl. Havalg. l. c. fig. 39 B), while the plants on *Rhodymenia* were fructiferous and agreed with the description of the younger plants. It was collected in July with sporangia as far down as to 5 fathoms.

Gr. or.: Tiningnekelak, Turner Sund.

92. **U. fucicola** K. Rosenv. Grl. Havalg. p. 926, Deux. Mém. p. 109.

It was collected sterile in June growing on *Fucus inflatus* and *Fucus vesiculosus.*

Gr. or.: Kap Dan.

Chætobolus K. Rosenv.

93. **Ch. gibbus** K. Rosenv. Grl. Havalg. p. 928, Deux. Mém. p. 110.

Fully typical specimens (K. Rosenv. Grl. Havalg. l. c. fig. 41) were collected in July growing in *Sorapion Kjellmani* on *Chætomorpha Melagonium.*

Gr. or.: Tiningnekelak.

Fam. *Chætophoraceæ.*

Arthrochæte K. Rosenv.

94. **A. penetrans** K. Rosenv. Deux. Mém. p. 110.

Acrochæte Pringsh.

95. **A. parasitica** Oltm., K. Rosenv. Deux. Mém. p. 114.

Bolbocoleon Pringsh.

96. **B. piliferum** Pringsh., K. Rosenv. Grl. Havalg. p. 134, Deux. Mém. p. 115.

The species was abundant in old fragments of *Stictyosiphon tortilis*, which were found in company with *Pylaiella littoralis* and *Isthmoplea sphærophora* floating in the water, in a hole in the ice of the lagoon, north of Kap Dalton. It was found sterile in July.

Gr. or.: Kap Dalton (N. H.).

Fam. *Ulothricaceæ.*

Ulothrix Kütz.

Key to the species:

I. Filaments 14—80 μ thick generally containing 2—3, rarely 1 or 4 pyrenoids in each cell .... U. flacca

II. Filaments 7—23 μ thick containing only one pyrenoid in each cell.

A. Chromatophore thickened in one end.

a. Without rhizoids.

o. Basal cell tapering downwards.

1. Chromatophore generally almost fills the length of the cell ..... U. pseudoflacca f. typica

2. Chromatophore does not fill the length of the cell .... U. pseudoflacca f. tenuior

oo. Basal cell discoidally widened at the base U. scutata

b. With rhizoids.

o. Basal cell discoidally widened at the base, no coalescent filaments .... U. scutata

oo. Basal cell slightly narrowed at the base, coalescent filaments occur.

1. Filaments straight, the coalescent filaments

adhere in their whole length; no unbroken basal layer .... U. consociata f. typica

2. Filaments often kneed at intervals, coalescent only at the base, forming an unbroken basal layer .... U. consociata var. islandica

B. Chromatophore thickened in the middle.. U. subflaccida

97. **U. flacca** (Dillw.) Thur., K. Rosenv. Grl. Havalg. p. 935, Deux. Mém. p. 115; Wille, Studien p. 18.

This species has been so exhaustively described by Rosenvinge (Grl. Havalg. l. c.) and Wille (l. c.) that I have nothing to add.

The filaments usually contain 2—3 pyrenoids in each cell, but cells with one, or, in the thicker filaments with four pyrenoids are not rare. The number of pyrenoids seems to be dependent on the size of the cell, that is, larger cells contain more pyrenoids than smaller ones, as pointed out by Wille (l. c. p. 20).

The American *U. flacca*, as it is figured and described by Hazen (Am. Ulothricaceæ p. 155, pl. 20, fig. 7—9), cannot in my opinion be regarded as identic with the Greenlandic and North European species. *U. flacca* Hazen is 10—25 μ thick and contains only one pyrenoid in each cell, it is moreover most likely without rhizoids, as the rhizoids are neither figured nor mentioned in the description. The Greenlandic species is 14—80 μ thick, contains 1—4 pyrenoids in each cell, and has rhizoids. Hazens species seems to be nearly related to *U. pseudoflacca* Wille and the two species are thus most naturally regarded as identic by Hazen (Am. Ulothricaceæ p. 156); but *U. pseudoflacca* Wille is so different from the species named *U. flacca* from Greenland, Iceland, the Færöes and Norway, that any confounding of the two species seems to be excluded, while specimens of *U. pseudoflacca* from Greenland have been determined as *U. implexa* Kütz.

As to the distribution of the species in West Greenland

there is nothing to add except some few localities, which may be regarded as unimportant, the species certainly being common in West Greenland.

The plants from East Greenland fully agree with the West Greenlandic specimens. They were gathered in June and July. Specimens with typical gametangia (Rosenv. Grl. Havalg. fig. 44 C) were collected in June.

Gr. or.: Ikerasak, Angmagsivik, Kangerdlugsuatsiak, Nualik.

98. **U. pseudoflacca** Wille Studien p. 22, U. implexa K. Rosenv. Grl. Havalg. p. 936, Deux. Mém. p. 115, pro parte.

This species frequently occurs in the Greenlandic collections. The specimens are somewhat varying, especially regarding the length of the cell, and sometimes also as to the shape of the basal cell. As a rule the basal cell is somewhat narrowed towards the base, as described by Wille (l. c.), but in specimens growing on *Acrosiphonia* I have occasionally met with basal cells, the bases of which were somewhat expanded and marked from the upper part of the cell by a slight narrowing. As the specimens on *Acrosiphonia* in other respects agree with this species, and the different shape of the basal cells gradually runs into the normal shape, I have referred them to *U. pseudoflacca*.

The length of the cell is considerably varying; usually it varies from $^1/_4$ of the breadth to as much as the breadth, but sometimes the cells are $1\,^1/_2$ times longer than broad. The length of the gametangia and zoosporangia varies in the same way as in the vegetative cells. The sporangia are usually of the same shape as the sterile cells, but sometimes they are somewhat thicker and of a more round shape. The zoosporangia contain 4—8 zoospores of the typical shape. Most frequently both zoosporangia and gametangia occur in the same filament. The thickness of the filaments varies from 9—23 μ. In other respects the structure of the cell of the Greenlandic specimens agrees

with the original description. The cromatophore usually seems to fill the length of the cell, but cells containing an chromatophore shorter than the cell, are not rarely met with in the filaments. The thickness of the cell walls varies considerably, according to age and growing places. The thicker walls are about $3\,\mu$. Specimens distinctly narrowed at intervals are occasionally met with (fig. 7).

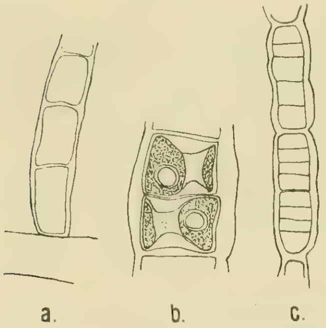

Fig. 7. *Ulothrix pseudoflacca* Wille.
a, a base of a filament. 667 : 1.
b, two cells showing the shape of the single chromatophore and the position of the single pyrenoid. 667 : 1.
c, a fragment of a filament showing the constriction, compare the text. 277 : 1.

f. **tenuior** nov. f.

Somewhat different specimens have been collected, growing on *Acrosiphonia*, or loose between *Pylaiella littoralis*. The filaments are $7-14\,\mu$ thick; they are frequently thickest in the middle and tapering towards the apex and towards the base ($7\,\mu$ at the base, $14\,\mu$ in the middle and $9\,\mu$ in the upper part). The basal cell is somewhat longer than in the typical form, and tapering towards the base. The upper part of the filaments was fructiferous, while the lower part frequently was sterile. The cells are generally longer than in the typical form, and their length varies from $^1/_2$ of the breadth to twice as much as the breadth. Both gametangia and zoosporangia sometimes occur in the same filament. The zoosporangia contain up to 8 zoospores. The sporangia are frequently thicker and of a more rounded shape than the sterile cells. The cell walls are usually thin, especially in young filaments, and in fructiferous plants the thickness of the walls does not amount to more than $1{,}5\,\mu$. Generally the chromatophore does not fill the length of the cell, it is usually distinctly belt-shaped and contains one lateral pyrenoid in the broader end. Sometimes the chromatophore seems to resemble

a curved plate with a somewhat lobed margin. In some respects these specimens resemble *U. subflaccida*, but they differ from it by the lateral position of the pyrenoid. As the specimens in some respects differ from the typical *U. pseudoflacca*, I have referred them to a new form, f. *tenuior*, which form, although not sharply defined, may, I think, be distinguished from the typical form by the following characters: The chromatophore usually does not fill the length of the cell, sometimes has a lobed margin, and the cells are longer. This form seems to me to be very much like *U. implexa* Hazen Am. Ulothricaceæ pl. 21, fig. 1, 2).

The species occurs on stones and rocks in the littoral region. Sometimes it has been collected in fresh water, beneath high-water mark. It is not rarely found in company with *U. flacca*, occasionally rather gregarious, forming green strata on the rocks. The species is also found growing on *Fucus* and *Acrosiphonia*, and sometimes entangled between other algæ. Specimens with gametangia were gathered in May—July, with zoosporangia in May and July. It occurs both on exposed and sheltered coast.

f. *typica* is certainly common in West Greenland.

Gr. occ.: Atanikerdluk, Sarkak in Vajgat (N.H.); Inilik in Atanek Fjord (P. H. Sörensen); Holstensborg (N.H.); Godthaab (L.K.R.); Frederikshaab (L. K. R., N.H.); Arsuk (H. Lassen); Issa west of Arsuk Fjord, Arsuk Storö (L.K.R.); Upernivik Island near Kagsimiut (H. Lassen); Sydpröven, Umanarsuk, the south end of Amitsok opposite Sermersok, Nanortalik, Kimatulivigsalik, Kitsigsut Öer (A. Jessen).

Gr. or.: Ikerasarsuk (Vahl); Smalsund.

f. *tenuior*.

Gr. or.: Nunatsuk (Sylow).

Geogr. distribution: Iceland, The Færöes, Norway.

U. scutata nov. sp.

The filaments are usually distinctly narrowed at intervals, 5—6 μ thick in the lowest part and 9—16 μ thick in the upper

part. The base of the basal cell is discshaped, with even or lobed margin, and marked from the upper part of the cell by a distinct constriction. The cells in the lowest part of the filament are as broad as long, or three times longer than broad, in the upper part their length is varying from 1/3 of the breadth to about as much as the breadth. The chromatophore is belt-shaped and contains one lateral pyrenoid in its broader end; it does not fill the length of the cell. The single nucleus has a lateral position in the cell. The zoosporangia contain at least 8 spores.

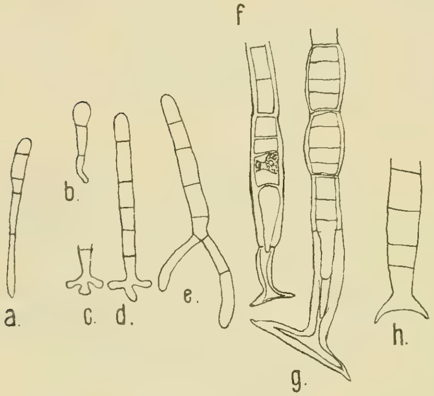

Fig. 8. *Ulothrix scutata* nov. sp.
a, b, two young plants with an elongated basal cell.
c, d, two young plants showing a lobed basal cell.
e, a young plant with an extramatrical rhizoid.
f, g, h, the basal portion of older filaments showing the discoidally widened lower end of the basal cell; in f and g the constrictions of the filaments and intramatrical rhizoids may moreover be seen.
a, b, c, d, e 168 : 1; f, g, h 422 : 1.

The specimens were found in the littoral region on species of *Acrosiphonia*. The filaments jut out freely from the substratum; they are usually distinctly constricted at intervals; every articulation (ɔ: the space between two constrictions) usually contains 4 cells and only sometimes more than 4 cells, that is, when some of the cells or all 4 have been divided without any distinct new constriction. The lower part of the filament is 5—6 μ thick, and much narrower than the remaining part of the filament, the thickness of which varies between 9 and 16 μ. The cells of the narrower, basal part of the filaments are as long as broad, or up to three times longer than broad, while the

length of the cells in the thicker part of the filament varies from about 1/3 of the breadth to as much as the breadth. The basal cell of young filaments is elongated, and either of the same thickness all over, or tapering towards the base. As the plants grow older the base of the basal cell is enlarged into a kind of basal disc, of the shape of a watch-glass, turning its concave side towards its substratum, the branches of *Acrosiphonia*; the margin of this basal disc is either entire or lobed or even palmate. The disc, or the discoidally enlarged base of the basal cell, is very distinctly marked from the upper part of the basal cell. The part of the basal cell which is next to the disc is often distinctly constricted, has thick walls and narrow lumen. Rhizoids are frequent, both extramatrical even in young plants, and intramatrical especially in older plants, but the filaments are not rarely destitute of rhizoids. The cell only contains a single, lateral nucleus. The chromatophore is belt-shaped and does not fill the length of the cell; it contains a single lateral pyrenoid in its broader and thicker end.

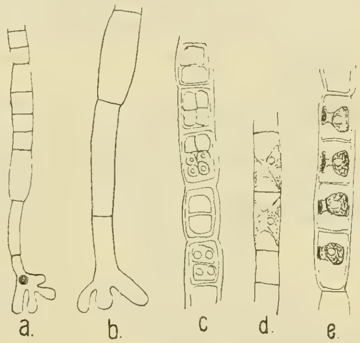

Fig. 9. *Ulothrix scutata* nov. spec.

a, **b**, The inferior part of two filaments showing the narrower basal portion and the lower portion of the thicker superior part, besides the lobed basal cell. In **a** the filament has been removed from the substratum, the discoidally widened lower end of the basal cell is unilaterally developed, and we look from below into the lumen of the cell. **a** 277 : 1; **b** 667 : 1.

c, a fragment of a filament showing the imperfectly divided zoosporangia. 422 : 1.

d, a fragment showing the shape of the chromatophore and the position of the single pyrenoid. 422 : 1.

e, a single articulation (compare the text) composed of 4 cells, showing the shape of the chromatophore and the position of the single pyrenoid. 667 : 1.

I have not met with specimens with fully ripe sporangia,

but judging by the stages of division of the sporangia shown in fig. 9 c, the number of the spores is at least 8.

The species is nearly related to *U. pseudoflacca* but differs from it essentially by the peculiar shape of the basal cell and the occurrence of rhizoids. The frequent constrictions of the filaments may be regarded as another difference, probably less important.

The species was collected in the littoral region in July—August, with unripe sporangia in July.

Gr. occ.: Umanalik east of Kangek Ö, 60° 36′, a rock near Kaersok, 60° 29′, the south side of Tusardluarnak, 60° 7′ (A. Jessen).

99. **U. consociata** Wille Studien p. 25.

To the typical form of this species I have referred some specimens collected by L. K. Rosenvinge at Godthaab, in rock-pools near high-water mark. The specimens occurred in company with blue-green algæ and some green algæ resembling stages of *Pleurococcus*. The filaments are 7—10 μ thick, and the length of the cell is varying from $1/4$ of the breadth to about as much as the breadth. Well developed rhizoids occur. The filaments are considerably narrower than in the Norwegian plants, and probably the specimens may be regarded as a f. *minor*.

Specimens collected by Jessen in the littoral region at Umanalik seem to be fully identic with Wille's species. The filaments are 14—22 μ thick, and the length of the cell varies from about $1/3$ to $3/4$ of the breadth. Rhizoids are abundant, and coalescent filaments have sometimes been met with. Filaments, that were indistinctly narrowed at intervals, occasionally occurred.

Gr. occ.: Godthaab (L. K. R.); Umanalik (A. Jessen).

var. **islandica** Jónss. Icel. Alg. p. 354, U. implexa K. Rosenv. Grl. Havalg. p. 936 ex parte.

Typical specimens of this variety have been collected by

Rosenvinge near the glacier of Kornok, growing on *Fucus inflatus*, in company with *Ulvella fucicola*. The plants occur gregariously, almost totally covering the substratum. The filaments are 14—16 μ thick and the length of the cell varies from $^1/_5$ to $^2/_3$ of the breadth. The filaments coalesce below as in the Icelandic plants. The rhizoids are well developed

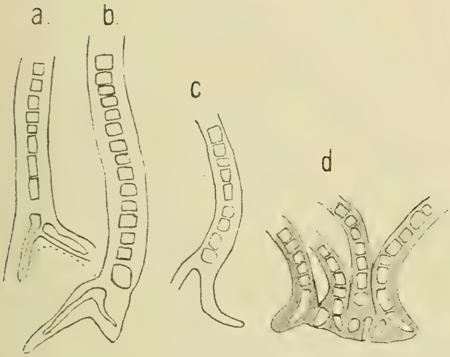

Fig. 10.

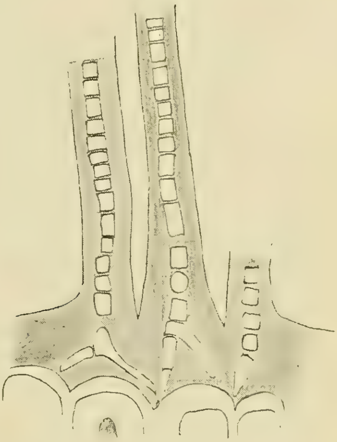

Fig. 11.

Ulothrix consociata Wille var. *islandica* Jónss.
Fragments of the specimens from Kornok.

Fig. 10. **a**, **b**, **c**, The basal portion of three filaments showing rhizoids. **d**, shows 4 filaments coalescent at the base. **a**, **b**, **c**, **d** 311 : 1.

Fig. 11. Transverse section of the frond of Fucus inflatus. The basal layer of the Ulothrix formed by the coalescent basal portions of the filaments covers the surface of the host with an unbroken growth. The rhizoids seem to penetrate the intercellular substance of the host. Beneath the basal layer of the Ulothrix the epidermal cells of the Fucus may be seen in the figure. 422 : 1.

and sometimes seem to penetrate the intercellular substance between the outmost cells of the host. The filaments are occasionally indistinctly kneed at intervals, and sometimes irregularly constricted. Sometimes the filaments are of an irregular appearance, caused by cells growing through emptied sporangia or dead cells. The chromatophore contains one lateral pyrenoid.

Regarding the structure of the chromatophore and the structure of the cell altogether, the Greenlandic specimens fully agree with the Icelandic plants. With gametes in July.

The specimens from East Greenland occurred on *Rhodymenia palmata*, they essentially resemble the above mentioned plants from West Greenland. The filaments are 14—16 μ thick, and the plants were less abundant.

Gr. occ.: Kornok (L. K. R.).

Gr. or.: Tiningnekelak.

Geogr. distribution: Iceland, The Færöes, Norway.

100. **U. subflaccida** Wille Studien p. 27.

To this species I have only referred some few, young, and sterile specimens. They fully agree with Wille's description and are easily recognizable by the position of the pyrenoid. The chromatophore does not fill the length of the cell and frequently occurs with a lobed margin. The filaments are 7—16 μ thick. The plants were found together with *Percursaria percursa*, *Acrosiphonia* sp. and *Urospora mirabilis*.

Hazen (Am. Ulothricaceæ p. 155) remarks, that *U. subflaccida* Wille apparently is identic with *U. implexa* Kütz. Whether *U. implexa* Kütz. is identic with any of the new species of *Ulothrix* described by Wille (l. c.) or not, must be left undecided until further examination of Kützing's original specimens has taken place, but judging from the description and figures (Hazen l. c. Pl. 21, fig. 1, 2) the American *U. implexa* does not seem to be identic with *U. subflaccida* (cfr. above p. 57).

Gr. occ.: Julianehaab (N. H.).

Gr. or.: Smalsund.

Geogr. distribution: Iceland, Norway.

Fam. *Ulvaceæ.*

Monostroma (Thur.).

101. **M. fuscum** (Post. et Rupr.) Wittr., emend. K. Rosenv. Grl. Havalg. p. 940, Deux. Mém. p. 116.

The specimens from East Greenland entirely agree with Rosenvinge's exhaustive description of the species (Grl. Havalg. l. c.). The size of the plants is somewhat varying. Young plants 2—5 cm. long and 0,5—2 cm. broad fully resemble the figures given by Rosenvinge (Grl. Havalg. fig. 48). The larger specimens are 10—30 cm. long and 5—20 cm. broad. The thickness of the frond varies between 39 and 44 μ. The species was gathered in May—July, and September, with zoospores in June, July, and September. In a single place it is said to have been dredged up from a depth of 5—19 fathoms.

As well known, Rosenvinge found (l. c.), that this species contains two chromatophores in each cell, one in each end of the cell, facing each of the two sides of the frond. In this respect *M. fuscum* differs from other species of *Monostroma* as, for example, *M. Grevillei*, which only contains one chromatophore in each cell facing the primary surface of the frond (Rosenv. l. c.). The occurrence of two chromatophores in each cell in *M. fuscum* is highly important and should be mentioned in the description of the species[1]).

Gr. or.: Tasiusak, Ikerasak, Tiningnekelak, Angmagsivik, Smalsund, Nualik.

102. **M. leptodermum** Kjellm., K. Rosenv. Grl. Havalg. p. 944, Deux. Mém. p. 117.

The largest specimen collected is 21 cm. long, and its largest breadth is 14 cm. Right above the tubular stipe the frond is 10 μ thick. The specimens are well agreeing with typical plants of this species, except in the largeness of the frond. The plants were collected in July.

Gr. or.: Tiningnekelak.

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[1]) F. S. Collins (The Ulvaceæ of North America, Rhodora, Journal of the New England Botanical Club, Vol. 5, No. 1, 1903) does not at all mention this important character neither in the description of the species nor in the description of the genus *Monostroma*.

103. **M. Grevillei** (Thur.) Wittr., emend. K. Rosenv. Grl. Havalg. p. 946, Deux. Mém. p. 117.

α. **typica** K. Rosenv. Grl. Havalg. p. 947.

Some few specimens of this variety have been collected. The frond is 17 μ thick, with somewhat thickened outer membrane.

β. **Vahlii** (J. Ag.) K. Rosenv. Grl. Havalg. p. 949.

Some small specimens of this variety have been collected; they agree well with the description, are up to 10 cm. long, with tubular frond.

γ. **arctica** (Wittr.) K. Rosenv. Grl. Havalg. p. 949.

Besides typical specimens the collection contains plants having an intermediate position between this and the following variety; they are up to 45 cm. long, with the uppermost part of the frond split into a few narrow segments, while the lower part, about $^2/_3$ of the frond, is tubular. The thickness of the frond is 43 μ at a distance of 1 cm. from the base, in the upper part the frond is somewhat thinner and thus measures only 39 μ in the lower part of the segments. Such specimens may as well be referred to one as to another of the named varieties.

δ. **intestiniformis** K. Rosenv. Grl. Havalg. p. 952.

Several typical specimens of this variety have been collected, some of which are much larger than reported by Rosenvinge (l. c.). The largest specimen of this collection is 130 cm. long, while the largest plant measured by Rosenvinge is 53 cm. long (l. c.). The thickness of the frond, measured at about the middle between the base and the apex of the frond, varies from 29—44 μ. A single fructiferous specimen was 44 μ thick at the apex of the frond. As pointed out by Rosenvinge the frond of this variety is not rarely split in its uppermost part.

The species was gathered in June, July, and September, with sporangia in June—July.

The varieties of this species are very varying and not sharply defined. While the frond of *M. fuscum* is cleft in an early stage of development, without regard to environmental influences, this species always remains tubular in sheltered situations (β and γ), and I think that the tubular frond must be regarded as normal in this species, as the split varieties (α and γ), which grow in the littoral region exposed to the dashing of the waves, in sheltered places occur with tubular frond; such specimens from Iceland have been shortly mentioned by me in Icel. alg. p. 350. The splitting of the frond is, I think, exclusively due to the surroundings, and the variability of the species seems to be caused by environmental influences. According to our present knowledge of these varieties I think it most natural to regard them as belonging to one and the same species, and I cannot admit Collins (l. c. cfr. my footnote p. 63) to be right in dividing *M. Grevillei* K. Rosenv. into two species: *M. Grevillei* Collins including var. *Vahlii* K. Rosenv., and *M. arcticum* Collins including var. *intestiniformis* K. Rosenv. The limit between the two species as understood by Collins, is as indistinct as the limit between the main form of the species and the included varieties. If closely related forms, which run into each other, are not to be regarded as belonging to one and the same species, we had better take as a species every form that can be described plainly enough to be recognizable, than form species of artificially grouped forms.

Gr. or.: Ikerasak (δ), Tiningnekelak (δ), Angmagsivik (α, γ), Smalsund (γ), Nualik (β, δ).

104. **M. groenlandicum** J. Ag., K. Rosenv. Grl. Havalg. p. 954, Deux. Mém. p. 117.

It has been collected in June—July together with *Ulothrix flacca*, *Monostroma Grevillei* δ. *intestiniformis* and *Rhodomela lycopodioides*. Fructiferous plants were gathered in July.

Gr. or.: Ikerasak, Nualik.

Enteromorpha (Link.).

105. **E. intestinalis** (L.) Link, emend. K. Rosenv. Grl. Havalg. p. 957, Deux. Mém. p. 117.

α. **genuina** K. Rosenv. Grl. Havalg. l. c.

Some fragments were collected in a single place in July.

Gr. or.: Tiningnekelak.

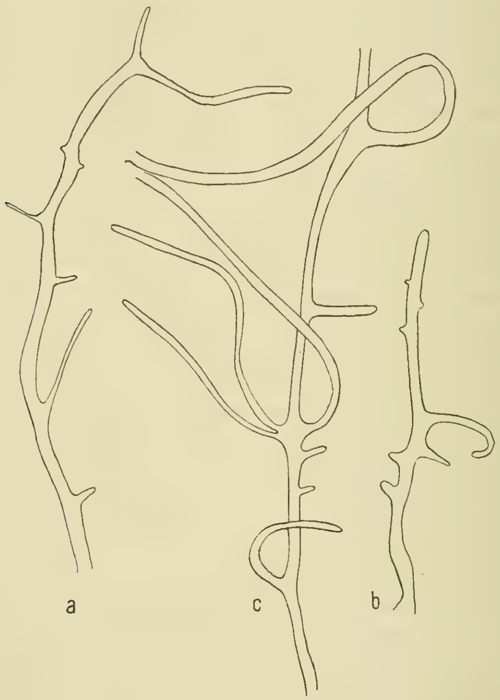

Fig. 12. *Enteromorpha prolifera* O. F. Müll.
a, b show the apex of the frond with young prolifications.
c, a fragment of a specimen at about the middle of the frond.
a, b, c 47 : 1.

106. **E. prolifera** O. F. Müll., K. Rosenv. Grl. Havalg. p. 960, E. micrococca f. subsalsa Börgesen, Freshwater Algæ in the Botany of the Færöes Part I, p. 245, Pl. VIII, fig. 6.

The specimens collected are small and richly proliferous. They habitually resemble *Enteromorpha micrococca* f. *sub-*

salsa Kjellm. (The algæ of the arctic sea p. 292, pl. 31, fig. 1—3) but still they differ from it in many respects, while they seem to be identic with *E. micrococca* f. *subsalsa* Börgesen (Freshwater Algæ l. c.). The Greenlandic specimens differ from *E. *micrococca* on account of the anatomical characters in spite of their small cells. The cells are frequently arranged in longitudinal series; seen from above they are usually of angular shape and only rarely somewhat rounded, they are of different size, and sometimes about twice as broad as long. In transverse section the frond also differs from *E. *micrococca* as to the shape of the cells and the thickness of the walls, but agrees essentially with *E. prolifera.* Such specimens in many respects resemble *E. arctica* J. Ag. and probably might be regarded as a very proliferous form of that species; as *E. arctica* has before been included in *E. prolifera* (Rosenv. l. c.) such extreme forms of the latter with the small cells might be called f. *arctica* (J. Ag.) (cfr. Collins, Ulvaceæ l. c. p. 22).

The specimens occurred in company with *Percursaria percursa* on somewhat overflowed shore. Gathered in July.

Gr. or.: Dunholm.

Percursaria Bory.

107. **P. percursa** (Ag.) K. Rosenv. Gr. Havalg. p. 963.

It has been collected in a single place on the eastern coast of Greenland together with *Enteromorpha prolifera.* The filaments consist of two rows of cells. It was collected with zoospores in July.

Specimens collected by Rosenvinge June 5, 1888 at Igdlorsuit in West Greenland are furnished with rhizoids. The rhizoids often occur abundantly, they usually consist of a single cell, sometimes of more than one and occasionally they seem to be transformed into branches. The specimens essentially resemble the branched Icelandic plants (Jónsson Icel. Alg. p. 343,

fig. 4). They occurred in company with *Enteromorpha prolifera*, *Ulothrix* sp. and *Calothrix scopulorum*.

Gr. occ.: Igdlorsuit (L. K. R.).

Gr. or.. Dunholm.

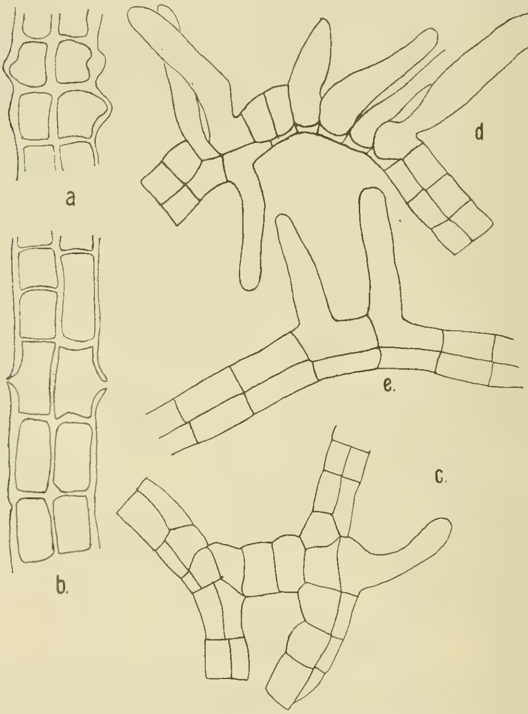

Fig. 13. *Percursaria percursa* (Ag.) K. Rosenv.

a, a fragment of a filament with ripe sporangia, in the prominent part of the walls of the sporangia, the opening is going to be. 527 : 1.
b, a fragment of a filament showing the opening of two emptied sporangia. 527 : 1.
c, a fragment of a branched specimen with a rhizoid to the right. 267 : 1.
d, e, fragments with rhizoids. 267 : 1.

Fam. *Protococcaceæ.*

Codiolum Al. Br.

C. gregarium Al. Br., Algarum unicellularum genera nova et minus cognita, Lipsiæ 1855, p. 19; Jónss. Icel. Alg. p. 338—340; C. Nordenskioeldianum K. Rosenv. Deux. Mém. p. 118.

This species was formerly known only from a single place in Greenland, Godthaab (Rosenv. Deux. Mém. l. c.). The specimens I have had for examination occurred in company with *Ulothrix consociata* Wille and were all young and small. The stipe was 102 μ long, the head 51 μ long and 6 μ broad. The head is distinctly marked from the stipe by a constriction. It was collected sterile in July in the littoral region.

Gr. occ.: Umanalik east of Kangek Ö, 60° 36′ (A. Jessen).

Chlorochytrium Cohn.

108. **Ch. Cohnii** Wright, K. Rosenv. Grl. Havalg. p. 963, Deux. Mém. p. 119.

Occurred in the gelatinous sheaths of *Diatoms*.

Gr. occ.: Igdlunguak south of Merkuitsok (N. H.).
Gr. or.: Tiningnekelak.

109. **Ch. inclusum** Kjellm., K. Rosenv. Grl. Havalg, p. 963, Deux. Mém. p. 119.

In the frond of *Turnerella Pennyi*. Gathered sterile in August.

Gr. or.: Tasiusak.

110. **Ch. dermatocolax** Rke., K. Rosenv. Grl. Havalg p. 964.

Grows in the outer membrane of *Chætopteris plumosa*, *Sphacelaria racemosa* and *Sphacelaria radicans*. It was collected sterile in June and August—September.

Gr. occ.: Ivigtut, in *Sphacelaria radicans* (L. K. R.).
Gr. or.: Kap Dan, Smalsund, Kangerdlugsuatsiak.

111. **Ch. Schmitzii** K. Rosenv. Grl. Havalg. p. 964, Deux. Mém. p. 119.

D. Myxophyceæ.

Fam. *Rivulariaceæ.*

Calothrix Ag.

112. **C. scopulorum** (W. et M.) Ag., K. Rosenv. Grl. Havalg. p. 966, Deux. Mém. p. 121.

It has been collected in the littoral region in August 1891 by N. Hartz. It seems to have been abundant.

Gr. or.: Heklahavn (N. H.).

Oscillatoria Vauch.

113. **O. amphibia** Ag., K. Rosenv. Grl. Havalg. p. 967.

It has been collected in July on stones in the littoral region.

Gr. or.: Stenö.

Pleurocapsa Thur.

114. **P. amethystea** K. Rosenv. Grl. Havalg. p. 967.

var. Johs. Schmidt in Jónsson Icel. Alg. p. 378.

The specimens were abundant on the filaments of *Rhodochorton Rothii* in the littoral region, and they agree entirely with the description of the Icelandic plants given by Johs. Schmidt (l. c.), they were collected in July.

Gr. or.: Stenö.

Principal abbreviations of titles of books.

J. Ag. Grl. Lam. = J. G. Agardh, Bidrag till kännedomen af Grönlands Laminarieer och Fucaceer. K. Svenska Vet.-Akad. Handlingar Bd. 10. No. 8. Stockholm 1872.

J. Ag. Spetsb. Alg. = J. G. Agardh, Bidrag till kännedomen af Spetsbergens Alger. Med Tilläg. K. Svenska Vet.-Akad. Handlingar Bd. 7, No. 8. Stockholm 1868.

Börgesen Fær. Alg. = F. Börgesen, Marine Algæ of the Færöes. Reprinted from the Botany of the Færöes. Part II, Copenhagen 1902.

Hazen Am. Ulothricaceæ = Tracy Elliot Hazen, The Ulothricaceæ and Chætophoraceæ of the United States. Memoirs of the Torrey Botanical Club. Vol. XI, No. 2, 1902.

Jónss. Icel. Alg. = Helgi Jónsson, The Marine Algæ of Iceland. Botanisk Tidsskrift Bind 24—25, Kjöbenhavn 1901 and 1903.

Kjellm. Spetsb. II = F. R. Kjellman, Om Spetsbergens marina, klorofyll-förande Thallophyter. II. Bihang till K. Svenska Vet.-Akad. Handlingar Band 4, No. 6. Stockholm 1877.

Kjellm. Arct. Alg. = F. R. Kjellman, The Algæ of the Arctic Sea. Kongl. Sv. Vetensk. Akad. Handlingar Bd. 20, No. 5. Stockholm 1883.

Kjellm. Handbok = F. R. Kjellman, Handbok i Skandinaviens hafsalgflora. I. Fucoideæ. Stockholm 1890.

Kjellm. Acrosiphonia = F. R. Kjellman, Studier öfver Chlorophycéslägtet Acrosiphonia J. G. Ag. och dess skandinaviska arter. Bihang till K. svenska Vet. Akad. Handlingar Band 18, Afd. III, No. 5. Stockholm 1893.

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Index of species

(Synonyms are printed in Italics).

1—9—1904.

II.

The Freshwater Algæ of East Greenland

by

E. Larsen.

1904.

The material treated in this paper falls in two parts. One part containing about 60 glasses with Chlorophyceae was gathered by C. Kruuse and N. Hartz who were members of the expedition to East Greenland, set on foot by the Carlsberg Fund in 1898—1900.

The other part containing about 25 glasses with Chlorophyceae was gathered in 1899 and 1902 by C. Kruuse in the district of Angmagsalik. They were all preserved in alcohol.

Of former works treating the Chlorophyceae of East Greenland three are known to me: Boldt II, Boldt III and Börgesen I (see List of writings).

In Boldt II 44 Desmidiaceae are stated, besides 4 Chlorophyceae in the little note of Boldt III. In Börgesen I a little more than 100 Chlorophyceae are stated.

In the above mentioned material I have found 125 Chlorophyceae of which 47 hitherto unknown from East Greenland.

The following genera are not before mentioned from East Greenland: *Crucigenia, Polyedrium, Coelastrum, Hormospora, Aphanochœte, Ophiocytium.*

The complete number of Chlorophyceae presently known from East Greenland is 188, of which 150 Desmidiaceae.

The following list includes the species found by me, all species formerly known and with certainty determined, besides all their respective habitats.

As to the species found by Boldt and Börgesen no account is given of varieties nor forms, but only of the species.

With regard to the limit between the Arctic and more southern flora of Desmidiaceae I only have to confirm what is stated by Börgesen (l. c. p. 4), still I have found *Euastrum oblongum* as far north as in Jameson Land.

I have not met with *Cladophora*, but with *Pediastrum* right up to Sabine Ö.

The dimensions are always in μ, where no other statement is given.

Li = Lat. Isthm.

The figures have all been drawn by means of a drawing prism (Seibert's microscope Objectiv V, Ocular I).

I am indebted to Dr. Börgesen for his valuable help; I also have to thank Miss E. Hallas for having determined the species of *Oedogonium* and *Bulbochæte*.

Copenhagen, Botanical Museum, July 1904.

List of habitats.

Kap Dan	65° 31′	Liverpool Kyst in Hurry Inlet	70° 50′
Tasiusak	65° 37′	Jameson Land Nordostbugt	71° 10′
Kordlortok	65° 40′	Fleming Inlet	71° 38′
Amaka	65° 40′	Canning Land about	71° 40′
Tunok	65° 52′	Kap Seaforth	71° 49′
Stenö	66° 2′	Forsblads Fjord	72° 30′
Falkefjæld	66° 4′	Kap Borlase Warren	74° 1′
Kingorsuak	66° 5′	Sabine Ö	74° 30′
Kap Warming about	67° 1′		
Kap Dalton	69° 25′		
Dunholm	69° 55′		

List of writings.

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Boldt II = Boldt, R.: Desmidiéer från Grönland. (Bih. till K. Sv. Vet. Akad. Handl. 1888.)

Boldt III = Boldt, R.: Några Söttvattensalger från Grönland. (Botaniska Notiser 1893.)

Borge I = Borge, O.: Bidrag till Sibiriens Chlorophycéflora. (Bih. till K. Sv. Vet. Akad. Handl. 1891.)

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Borge III = Borge O.: Süsswasser Chlorophycéen gesammelt von Dr. A. O. Kihlmann im nördlichen Russland Gouvernement Archangel. (Bih. till K. Sv. Vet. Akad. Handl. 1894.)

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Nordstedt II = Nordstedt, O.: Bidrag till kännedomen om sydligare Norges Desmidieer. Lund 1873.

Nordstedt III = Nordstedt, O.: Desmidieae arctoæ. (Öfvers. af K. Sv. Vet. Akad. Handl. 1875.)

Nordstedt IV = Nordstedt, O.: Desmidieer samlade af Sv. Berggren under Nordenskiöldska expeditionen till Grönland 1870. (Öfvers. af K. Sv. Vet. Akad. Handl. 1885.)

Raciborski I = Raciborski: Monogr. Pediastr. (Mem. ac. imp. des sciences de Cracovie. 1889.)

Ralfs I = Ralfs, J.: The British Desmidieae. London 1848.

Senn I = Senn, G.: Ueber einige koloniebildende einzellige Algen. (Bot. Zeit. 1899.)

Toni de I = Toni, J. B. de: Sylloge Algarum Vol. I. Patavii 1889.

Wille I = Wille, N.: Ferskvandsalger fra Novaja Semlja. (Öfvers. af K. Sv. Vet. Akad. Handl. 1879.)

Wille II = Wille, N.: Algologische Mittheilungen. (Pringsh. Jahrb. XVIII.)

A. Chlorophyceae.

I. Conjugatae.

Desmidiaceae.

Arthrodesmus Ehrb.

1. **A. convergens** Ehrb.

Sim. Fig. Borge III, Tab. III, fig. 35. Lo 41, La sine acul. 46, Li 10.

Falkefjæld.

2. **A. incus** Hass.

Ralfs I, Tab. XX, fig. 4 f. Lo 17—19,5, La 14,3—15,6, Li 6,5—7,8.

Amaka, Liverpool Kyst in Hurry Inlet.
Börgesen I: Hekla Havn. Boldt II: Tasiusak.

3. **A. octocornis** Ehrb.

Börgesen I: Hekla Havn.

Closterium Nitzsch.

1. **C. acutum** Bréb.

Ralfs I: Tab. XXX, fig. 5 c. Lo 136—140, La 10.

Kordlortok, Liverpool Kyst in Hurry Inlet.
Börgesen I: Hekla Havn.

2. **C. cornu** Ehrb.

Ralfs I: Tab. XXX, fig. 6. Lo 84,5—106, La 10—11,7.

Jameson Land, Forblads Fjord.

3. **C. Dianæ** Ehrb.
Ralfs I: Tab. XXVIII, fig. 5. Lo 107,9—125, La 10,4—15,6.
Amaka, Liverpool Kyst, Jameson Land, Kap Seaforth.
Börgesen I: Hekla Havn.

4. **C. intermedium** Ralfs.
Ralfs I: Tab. XXIX, fig. 3. Lo 220, La 32.
Kordlortok, Amaka, Jameson Land.
Börgesen I: Hekla Havn.

5. **C. Jenneri** Ralfs.
Wille I: pag. 60, Tab. XIV, fig. 83. Lo 66,3—100, La 10—12,2.
Amaka, Kap Dalton, Jameson Land.
Börgesen I: Hekla Havn.

6. **C. juncidum** Ralfs.
Börgesen I: Hekla Havn.

7. **C. Kützingii** Bréb.
Börgesen I: Röde Ö.

8. **C. parvulum** Näg.
Wille I: pag. 60, Tab. XIV. fig. 84. Lo 88,4, La 12.
Fleming Inlet.
Boldt II: Tasiusak.

9. **C. rostratum** Ehrb.
Ralfs I: Tab. XXX, fig. 3. Lo 342, La 22,3.
Amaka. Boldt II: Tasiusak.

10. **C. striolatum** Ehrb.
Ralfs I: Tab. XXIX, fig. 2. Lo 262—300, La 23,4—26,6.
Amaka, Liverpool Kyst in Hurry Inlet.
Börgesen I: Hekla Havn. Boldt II: Tasiusak.

Cosmarium Ralfs.

1. **C. anceps** Lund.
Lundell I: pag. 48, Tab. III, fig. 4. Lo 28, La 15, Li 10,5
Jameson Land.
Börgesen I: Röde Ö.

2. **C. annulatum** De. By.

Börgesen I: Hekla Havn. Boldt II, Tasiusak.

3. **C. arctoum** Nordst.

Börgesen I: Hekla Havn.

4. **C. bioculatum** Bréb.

Ralfs I: Tab. XV, fig. 5. Lo 19,5, La 16,9, Li 5.

Kap Borlase Warren, Sabine Ö.

Börgesen I: Röde Ö, Hekla Havn. Boldt II: Tasiusak.

5. **C. biretum** Bréb.

Ralfs I: Tab. XVI, fig. 5. Lo 47, La 42, Li 17.

Kordlortok, Amaka, Sabine Ö.

6. **C. Blyttii** Wille.

Börgesen I: Hekla Havn.

7. **C. Botrytis** Menegh.

Delponte I: Tab. VIII, fig. 31—32. Lo 50—65, La 42—51, Li 14—18.

Kordlortok, Amaka, Tunok, Falkefjæld, Kap Dalton, Liverpool Kyst, Jameson Land, Fleming Inlet, Kap Seaforth, Kap Borlase Warren.

Börgesen I: Hekla Havn, Danmarks Ö. Boldt II: Tasiusak.

forma: **Boldtii.**

Boldt II: pag. 29, forma d. Lo 45,5, La 41, Li 13.

Falkefjæld.

8. **C. caelatum** Ralfs.

Ralf I: Tab. XVII, fig. 1 c. Lo 46, La 36, Li 14,3.

Kap Dalton.

9. **C. capitulum** Roy & Biss.

Börgesen I: Hekla Havn.

10. **C. connatum** Bréb.

Ralfs I: Tab. XVII, fig. 10. Lo 85, La 55,9.

Jameson Land.

Börgesen I: Hekla Havn.

11. **C. conspersum** Ralfs.

Ralfs I: Tab. XVI, fig. 4. Lo 84,5—110, La 65—80, Li 19,5—26,6.

Jameson Land, Kap Borlase Warren.

Börgesen I: Hekla Havn, Röde Ö.

12. **C. costatum** Nordst.

Nordstedt III: pag. 25, Tab. VII, fig. 17. Lo 39, La 34, Li 15.

Kap Dalton.

Börgesen I: Hekla Havn. Boldt II: Tasiusak.

13. **C. crenatum** Ralfs.

Börgesen I: Hekla Havn. Boldt II: Tasiusak.

14. **C. cucumis** Ralfs.

Nordstedt III: Tab. VII, fig. 28. Lo 104, La 65, Li 39.

Amaka. Börgesen I: Hekla Havn.

15. **C. cucurbita** Bréb.

Sim. Fig. Klebs Desm. Ostpreuss. Tab. III, fig. 8. Lo 50, La 24,7.

Kap Warming.

16. **C. cyclicum** Lund. var. **arcticum** Nordst.

Nordstedt I: pag. 31, Tab. VI, fig. 13. Lo 45,5—65, La 42—65, Li 12—19,5.

Amaka, Falkefjæld, Kingorsuak, Kap Dalton, Liverpool Kyst in Hurry Inlet, Sabine Ö.

Börgesen I: Hekla Havn.

17. **C. Debaryi** Archer.

Börgesen I: Hekla Havn.

18. **C. excavatum** Nordst.

Börgesen I: Hekla Havn.

19. **C. globosum** Bulnh.

Börgesen I: p. 21, Tab. I, fig. 15. Lo 13—16, La 9—12, Li 8—9.

Jameson Land, Sabine Ö.

Börgesen I: Hekla Havn.

forma: **major** Wille.

Wille I: pag. 45, Tab. XIII, fig. 42. Lo 26—28, La 19,5—21, Li 17—19.

Jameson Land.

20. **C. granatum** Bréb.

Ralfs I: Tab. XXXII, fig. 6. Lo 30, La 22, Li 6,5.

Kordlortok, Amaka.
Börgesen I: Hekla Havn, Danmarks Ö. Boldt II: Tasiusak.

21. **C. hexalobum** Nordst.

Nordstedt I: pag. 33, Tab. VII, fig. 16. Lo 52, La 37,7, Li 20.

Kap Dalton, Liverpool Kyst in Hurry Inlet.
Börgesen I: Hekla Havn.

22. **C. hexastichum** Lund.

Lundell I: pag. 33, Tab. III, fig. 13 a. Lo 51, La 39, Li 17—18.
Amaka.
Boldt II: Tasiusak.

As to the granulation it agrees with the form mentioned by Nordstedt IV, p. 9.

23. **C. Holmiense** Lund.

Nordstedt I: pag. 28, Tab. VI, fig. 5. Lo 66, La 32,5, Li 18.

Kingorsuak, Kap Dalton, Liverpool Kyst in Hurry Inlet, Jameson Land, Kap Borlase Warren, Sabine Ö.
Börgesen I: Hekla Havn, Röde Ö, Hold with Hope.

24. **C. homalodermum** Nordst.

Nordstedt III, pag. 18, Tab. VI, fig. 4. Lo 53,3—57, La 43—44, Li 16—18.

Kap Dalton, Liverpool Kyst in Hurry Inlet, Jameson Land Nordostbugt.

25. **C. Kirchneri** Börgs.

Börgesen I: Hekla Havn, Danmarks Ö.

26. **C. læve** Rab.

Nordstedt: Desm. ital. (Öfvers. K. Vet. Akad. Förh. 1876), pag. 29, Tab. 12, fig. 4. Lo 26, La 15,6, Li 4.

Falkefjæld.

The specimens found by me fully agree with Nordstedt's figure (l. c.). The species has been found by Borge in North Russia (Borge III, p. 26).

27. **C. margaritiferum** Menegh.

Ralfs I: Tab. XVI, fig. 2. Lo 35—57,2, La 28—52, Li 14—15,6.

Kordlortok, Amaka, Falkefjæld, Jameson Land, Sabine Ö.

Börgesen I: Hekla Havn.

28. **C. Meneghinii** Bréb.

Ralfs I: Tab. XV, fig. 6. Lo 19,5—26, La 17, Li 7—9.

Kordlortok, Amaka, Tunok, Kap Dalton, Jameson Land, Kap Borlase Warren, Sabine Ö.

Börgesen I: Hekla Havn, Röde Ö.

29. **C. microsphinctum** Nordst.

Börgesen I: pag. 16, Tab. I, fig. 6. Lo 40—44, La 29—31, Li 15—18.

Kap Dalton, Sabine Ö.

Börgesen I: Hekla Havn.

forma: **parvulum** Wille.

Wille I: pag. 38, Tab. XII, fig. 22. Lo 32,5, La 19,5, Li 6.

Jameson Land.

30. **C. nasutum** Nordst.

Nordstedt I: pag. 34, Tab. VII, fig. 17. Lo 37, La 30, Li 12.

Kap Dalton, Jameson Land.

forma: **granulata** Nordst.

Wille I: pag. 42, Tab. XII, fig. 30. Lo 41—48, La 31—36,4, Li 11,7—17.

Kordlortok, Kap Dalton, Liverpool Kyst in Hurry Inlet.

Börgesen I: Hekla Havn.

31. **C. Nathorstii** Boldt.

Boldt II: Tasiusak.

32. **C. ochthodes** Nordst.

Nordstedt III: pag. 17, Tab. VI, fig. 3. Lo 78, La 57, Li 37.

Kordlortok, Falkefjæld, Kap Dalton, Fleming Inlet, Jameson Land, Kap Borlase Warren, Sabine Ö.

Börgesen I: Hekla Havn. Boldt II: Tasiusak.

33. **C. orbiculatum** Ralfs.

Klebs: Desm. Ostpreuss. 1879, Tab. III, fig. 78—79. Lo 29—31, La 20—24, Li 9.

Falkefjæld, Kap Borlase Warren.

34. **C. perforatum** Lund.

Boldt II: Tasiusak.

35. **C. Phaseolus** Bréb.

forma: **minor.**

Boldt II: pag. 15. Lo 21,5, La 19, Li 7.

Amaka.

var. **elevata** Nordst.

Nordstedt II: pag. 17, fig. 5. Lo 28,6, La 27,3, Li 10.

Liverpool Kyst in Hurry Inlet.

Börgesen I: Hekla Havn. Boldt II: Tasiusak.

36. **C. Portianum** Archer.

Fig. nob. 1. Lo 36—39, La 26—27, Li 11.

Kordlortok, Amaka, Falkefjæld, Jameson Land.

Börgesen I: Hekla Havn.

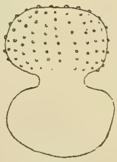


Fig. 1. *Cosmarium Portianum* Cellula a fronte.

37. **C. profractum** Archer.

Hirn I: pag. 11, Tab. I, fig. 10. Lo 40, La 38, Li 8.

Amaka.

38. **C. protumidum** Nordst. *β.* **triquetrum** Nordst.

Nordstedt I: pag. 35, Tab. VII, fig. 19. Lo 38—40, La 30.

Kap Dalton, Jameson Land, Kap Borlase Warren, Sabine Ö.

39. **C. pseudoprotuberans** Kirchner.

Börgesen I: pag. 18, Tab. I, fig. 12. Lo 37, La 29, Li 10.

Amaka.

Börgesen I: Hekla Havn.

40. **C. pulcherrimum** Nordst.

Börgesen I: Hekla Havn.

41. **C. punctulatum** Bréb.

Klebs: Desm. Ostpreuss. pag. 37, Tab. III, fig. 50—51, Lo 27—31, La 21—29, Li 8—10.

Amaka, Stenö, Falkefjæld, Kap Dalton, Jameson Land, Fleming Inlet, Kap Borlase Warren, Sabine Ö.

Börgesen I: Hekla Havn.

42. **C. pusillum** Bréb.

Boldt II: Tasiusak.

43. **C. quadratum** Ralfs.

Wille I: pag. 37, Tab. XII, fig. 20. Lo 49—57, La 27—33, Li 15—22.

Kordlortok, Amaka, Falkefjæld, Kap Dalton, Liverpool Kyst, Jameson Land, Kap Borlase Warren, Sabine Ö.

forma: **major** Wille.

Wille l. c., Tab. XII, fig. 21. Lo 65, La 33,8, Li 20,8.

Liverpool Kyst in Hurry Inlet.

Börgesen I: Hekla Havn, Röde Ö.

Boldt II: Tasiusak.

44. **C. reniforme** Archer.

Börgesen I: Hekla Havn.

45. **C. scenedesmus** Delp.

Börgesen I: Hekla Havn, Danmarks Ö.

46. **C. speciosum** Lund.

var. **biforme** Nordst.

Nordstedt I: pag. 30, Tab. VI, fig. 11. Lo 62, La 50.

Sabine Ö.

Börgesen I: Röde Ö. Boldt II: Tasiusak.

var. **simplex** Nordst.

Nordstedt l. c., Tab. VI, fig. 12. Lo 45, La 30, Li 19.

Kingorsuak, Kap Warming, Kap Dalton, Liverpool Kyst in Hurry Inlet, Jameson Land, Kap Borlase Warren, Sabine Ö.

Börgesen I: Hekla Havn.

47. **C. spetsbergense** Nordst.

Nordstedt I: pag. 27, Tab. VI, fig. 3. Lo 61, La 32,5, Li 19,5.

Liverpool Kyst in Hurry Inlet.

48. **C. striatum** Boldt.

Boldt I: pag. 104, Tab. V, fig. 9. Lo 15, La 14, Li 5.

Kordlortok, Amaka, Jameson Land.

Boldt II: Tasiusak.

49. **C. subcostatum** Nordst.

Börgesen I: Hekla Havn.

50. **C. subcrenatum** Hantzsch.

Nordstedt III, pag. 21, Tab. VI, fig. 10—11. Lo 23—33, La 20,8—27, Li 8—12.

Kordlortok, Amaka, Kap Dalton, Jameson Land, Sabine Ö.

Börgesen I: Hekla Havn. Boldt II: Tasiusak.

51. **C. sublobatum** Archer.

Börgesen I: Hekla Havn.

52. **C. subspeciosum** Nordst.

Börgesen I: Hekla Havn.

53. **C. subtumidum** Nordst.

Wittr. et Nordst.: Alg. exsic. Nr. 172. Lo = La = 27—28, Li 7,5.

Kordlortok, Amaka.

54. **C. tetraopthalmum** Kütz.

Delponte I: Tab. IX, fig. 1—4. Lo 98—110, La 72—83, Li 20—27.

Kordlortok, Amaka, Falkefjæld.

55. **C. tinctum** Ralfs.

Börgesen I: Hekla Havn.

56. **C. Turpinii** Bréb.

Börgesen I, pag. 13, Tab. I, fig. 7. Lo 65, La 59, Li 16.

Kordlortok, Amaka, Falkefjæld, Kap Dalton, Kap Seaforth, Sabine Ö.

Börgesen I: Hekla Havn. Boldt II: Tasiusak.

57. **C. undulatum** Corda.

Ralfs I: Tab. XV, fig. 8. Lo 50—52, La 35—37,7, Li 14—16.

Kordlortok, Amaka.

Börgesen I: Hekla Havn.

58. **C. venustum** Archer.

Börgesen I: pag. 17, Tab. I, fig. 10. Lo 42, La 31,5, Li 9.

Kordlortok, Amaka.

Börgesen I: Hekla Havn, Darmarks Ö. Boldt II: Tasiusak.

Cylindrocystis De By.

C. Brebissonii Menegh.

Lo 26, La 13.

Kingorsuak, Kap Dalton.

Börgesen I: Gaasefjord.

Desmidium Ralfs.

D. Swartzii Ag.

Ralfs I: Tab. IV. Lo 19,5, La 44, Li 35.

Kordlortok, Amaka.

Börgesen I: Hekla Havn.

Euastrum Ralfs.

1. **E. ansatum** Ralfs.

Ralfs I: Tab. XIV, fig. 2. Lo 62, La 36, Li 9.

Kordlortok, Amaka.

Börgesen I: Hekla Havn.

2. **E. binale** Ralfs.

Ralfs I: Tab. XIV, fig. 8. Lo 20—22, La 13—16.

Kordlortok, Amaka, Kap Dalton, Liverpool Kyst in Hurry Inlet, Jameson Land, Sabine Ö.

Börgesen I: Danmarks Ö, Gaasefjord, Hekla Havn. Boldt II: Tasiusak.

3. **E. crassicolle** Lund.

Lundell I: pag. 23, Tab. II, fig. 8. Lo 27, La 14, Li 7.

Kap Dalton, Jameson Land, Kap Borlase Warren.

Börgesen I: Hekla Havn. Boldt II: Tasiusak.

4. **E. cuneatum** Jenner.

Börgesen I: Hekla Havn. Boldt II: Tasiusak.

5. **E. denticulatum** Gay.

Börgesen I: Hekla Havn.

6. **E. didelta** Ralfs.

Ralfs I: Tab. XIV, fig. 1. Lo 102, La 53, Li 14.

Kordlortok, Amaka.

7. **E. elegans** Kütz.

Ralfs I: Tab. XIV, fig. 7. Lo 45,5, La 28,6, Li 9.

Kordlortok, Amaka, Falkefjæld, Liverpool Kyst in Hurry Inlet, Jameson Land, Fleming Inlet, Kap Borlase Warren, Sabine Ö.

Börgesen I: Hekla Havn.

var. **bidentata** Näg.

fere sim. Boldt II: Tab. I, fig. 10 (var. *speciosum*). Lo 49,4, La 32,5, Li 7.

Kordlortok, Amaka, Falkefjæld, Jameson Land.

Börgesen I: Hekla Havn. Boldt II: Tasiusak.

8. **E. gemmatum** Bréb.

Boldt II: pag. 6, Tab. I, fig. 5. Lo 46,8, La 35, Li 9.

Amaka.

Boldt II: Tasiusak.

9. **E. oblongum** Ralfs.

Ralfs I: Tab. XII a, b. Lo 136,8—152, La 68,4—72, Li 19—22,8.

Kordlortok, Amaka, Falkefjæld, Jameson Land.
Boldt II: Tasiusak.

10. **E. pectinatum** Bréb.

Ralfs I: Tab. XIV, fig. 5. Lo 64, La 44, Li 10.
Kordlortok, Amaka.

forma: The terminal lobe not dilated as in Ralf's figure (Ralfs I: Tab. XIV, fig. 5) cfr. fig. nob. 2.

Lo 63,7, La 46,2, Li 9,8.
Kordlortok, Amaka.

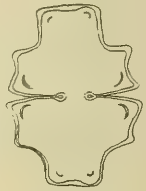


Fig. 2. *Euastrum pectinatum* Bréb. forma. Cellula a fronte.

11. **E. verrucosum** Ehrb.

Boldt II: Tasiusak.

β. **rhomboideum** Lundell. forma: **groenlandica** nob. cfr. Fig. nob. 3.

Seen from above the cell is relatively much broader than the cell observed by Lundell. Cfr. Lundell I, Tab. I, fig. 8. Lo 120, La 104.

Kordlortok, Amaka, Falkefjæld.

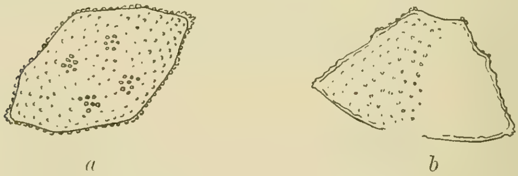


Fig. 3. *Euastrum verrucosum* Ehrb. β. *rhomboideum* Lund. forma *groenlandica* nob. *a*; Cellula a vertice: *b*: Semicellula a fronte.

Gonatozygon De By.

G. asperum Bréb.

Ralfs I: Tab. XXVI, fig. 6. Lo 260, La 12.
Jameson Land, Fleming Inlet.

G. Ralfsii De By.

Börgesen I: Hekla Havn, Röde Ö, Gaasefjord.

Gymnozyga Ehrb.

G. moniliformis Ehrb.

La 16.

Sabine Ö.

Börgesen I: Hekla Havn.

Hyalotheca Kütz.

H. dissiliens Bréb.

Ralfs I: Tab. I, fig 1. La 26.

Falkefjæld, Liverpool Kyst in Hurry Inlet, Sabine Ö.

Börgesen I: Hekla Havn. Boldt II: Tasiusak.

var **bidentatula** Nordst.

Nordstedt II, pag. 48, Tab. I, fig. 22. La 20.

Jameson Land.

Börgesen I: Hekla Havn.

Mesotænium Näg.

M. Braunii De By.

Börgesen I: Gaasefjord.

Micrasterias Ag.

M. americana Ralfs.

Boldt II: pag 5, Tab. I, fig. 1. Lo 140, La 110. Li 30.

Kordlortok, Amaka.

Boldt II: Tasiusak.

M. denticulata Bréb.

Boldt II: Tasiusak.

Penium De By.

1. **P. closterioides** Ralfs.

Börgesen I: Hekla Havn. Boldt II; Tasiusak.

2. **P. curtum** Bréb.

forma: **major** Wille.

Wille I: pag. 56, Tab. XIV, fig. 73. Lo 40—42, La 20,8—22.

Kap Dalton, Jameson Land, Kap Borlase Warren, Sabine Ö.

forma: **minor** Wille.

Wille l. c., Tab. XIV, fig. 74. Lo 30, La 14.

Kap Dalton, Jameson Land, Kap Borlase Warren, Sabine Ö.
Börgesen I: Hekla Havn.

3. **P. cylindrus** Bréb.

Delponte I: Tab. XV, fig. 30. Lo 50, La 14.

Jameson Land.

4. **P. lamellosum** Bréb.

Delponte I: Tab. XV, fig. 13. Lo 117—170, La 36,4—39.

Kordlortok, Amaka, Falkefjæld.

5. **P. margaritaceum** Bréb.

Ralfs I: Tab. XXV, fig. 1. Lo 83—120, La 21—22.

Kordlortok, Amaka, Kap Dalton, Jameson Land, Sabine Ö.

6. **P. polymorphum** Perty.

Lundell I: pag. 86, Tab. V, fig. 10. Lo 58,5, La 27,3.

Kap Dalton.

7. **P. Regelianum** Wille.

Börgesen I: Hold with Hope.

Pleurotænium Lund.

P. trabecula Näg.

Börgesen I: Danmarks Ö. Boldt II: Tasiusak.

β. **crassum** Wittrock.

Wittrock: Gotl. och Ölands Sötvatnsalg. 1872. pag. 62, Tab. IV, fig. 17. Lo 494—532, La 38—41,8.

Kordlortok, Amaka. Tunok, Falkefjæld.
Börgesen I: Hekla Havn, Röde Ö.

Sphærozosma Arch.

S. excavatum Ralfs.

Ralfs I: Tab. VI, fig. 2. La 11,7, Li 5.

Falkefjæld.

Börgesen I: Hekla Havn.

forma: Boldt II: pag. 42, Tab. II, fig. 52. Lo 9, La 10, Li 5.

Liverpool Kyst, Jameson Land.

Boldt II: Tasiusak.

Staurastrum Ralfs.

1. **S. aculeatum** Menegh.

β. **ornatum** Nordst.

Nordstedt I: pag. 40, Tab. VII, fig. 27. Lo 45, La 34, Li 15.

Kap Dalton.

Börgesen I: Hekla Havn.

forma: **spinosissima tetragona** Wille.

Wille I: pag. 54, Tab. XIII, fig. 67. Lo 39—40, Li 14.

Kap Dalton, Liverpool Kyst in Hurry Inlet.

Börgesen I: Hekla Havn.

forma: **simplex** Boldt II, pag. 38, Tab. II, fig. 49. Lo 37, La 39, Li 15.

Kap Dalton.

Börgesen I: Hekla Havn.

forma: **torta** Börgesen I: pag. 28, Tab. II, fig. 26. Lo 32, Li 11.

Liverpool Kyst in Hurry Inlet.

Börgesen I: Hekla Havn.

2. **S. alternans** Bréb.

Ralfs I: Tab. XXI, fig. 7. Lo 31,3, La 29.

Kap Dalton, Sabine Ö.

3. S. **Bieneanum** Rab.

forma: **Spetsbergensis** Nordst.

Nordstedt III: pag. 33, Tab. VIII, fig. 35. Lo 36—37, La 36, Li 10—11.

Kap Borlase Warren.

Börgesen I: Hekla Havn.

forma: **groenlandica** nob. is possibly a form of S. Kjellmani Wille (Wille I, p. 50) but it is not granulated, only slightly pored; it is moreover somewhat smaller. Lo 35,5, La 23,4, Li 15,6. Fig. 4.

Kordlortok, Amaka.

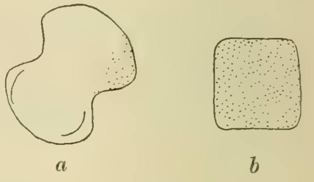


Fig. 4.

Staurastrum Bieneanum Rab. forma *groenlandica* nob.

a: Cellula a fronte.

b: Cellula a vertice.

4. S. **Brebissoni** Arch.

Cfr. Boldt II: pag. 33, Tab. II, fig. 45. Lo 57—71,5, La 33—54,6, Li 19,5—22.

Kordlortok, Amaka, Kap Dalton, Liverpool Kyst in Hurry Inlet, Jameson Land.

5. S. **brevispinum** Bréb.

Ralfs I: Tab. XXXIV, fig. 7.

forma: **minor** Rab. Lo 34, La 33, Li 10.

Liverpool Kyst in Hurry Inlet.

Börgesen I: Hekla Havn, Röde Ö.

6. S. **capitulum** Bréb.

β. **amoenum** Rab. forma: **Spetsbergense** Nordst.

Nordstedt I: pag. 39, Tab. VII, fig. 25. Lo 41,6, La 29,9, Li 15,6.

Kap Dalton.

7. S. **cuneatum** Boldt.

Boldt I: pag. 114, Tab. V, fig. 24. Lo 21,3, La 20, Li 7,8.

Kordlortok.

8. S. **cuspidatum** Bréb.

Ralfs I: Tab. XXI, fig. 1. Lo 40. La 26,6, Li 10,4.

Jameson Land.

Börgesen I: Hekla Havn, Danmarks Ö, Röde Ö.

9. S. **dejectum** Bréb.

Ralfs I: Tab XX, fig. 5. Lo 32, La 30.

Kordlortok, Amaka, Falkefjæld.

Börgesen I: Hekla Havn.

10. S. **Dickiei** Ralfs.

Börgesen I: Hekla Havn.

11. S. **furcigerum** Bréb.

Ralfs I: Tab. XXXIII, fig. 12. Lo sine procul. 38,4, Lo cum procul. 66,3, La cum procul. 58,5.

Amaka. Börgesen I: Hekla Havn, Röde Ö.

12. S. **hexacerum** Wittr.

forma: **4-gona** Boldt.

Boldt I: pag. 115, Tab. V, fig. 25. Lo 26, La 30, Li 8.

Kap Dalton.

forma: **alternans** Wille. Wille I: p. 53.

Jameson Land.

Börgesen I: Hekla Havn.

13. S. **insigne** Lund.

Börgesen I: Hekla Havn. Boldt II: Tasiusak.

14. S. **Kjellmani** Wille.

formæ: **tetragona** et **pentagona** Wille.

Wille I: pag. 50, Tab. XIII, fig. 52. Lo 45—48, La 34—37,7, Li 18—20.

Kap Dalton, Liverpool Kyst in Hurry Inlet, Sabine Ö.

forma: **trigona minor** Wille l. c. Tab. XIII, fig. 51. Lo 37, La 32,5, Li 14.

Kap Dalton.

Börgesen: Hekla Havn. Boldt II: Tasiusak.

15. **S. lunatum** Ralfs.

forma: **groenlandica** Börges. Börgesen I: pag. 29, Tab. II, fig. 27. Lo 34, La 32, Li 12.

Liverpool Kyst in Hurry Inlet.
Börgesen I: Hekla Havn.

var. **triangularis** Börges. Börgesen l. c. Tab. II, fig. 28. Lo = La sine acul. = 32, Li 12.

Amaka, Kap Dalton.
Börgesen I: Hekla Havn.

16. **S. margaritiferum** Menegh.
Börgesen I: Hekla Havn. Boldt II: Tasiusak.

17. **S. meganolotum** Nordst.
Börgesen I: Hekla Havn. Boldt II: Tasiusak.

18. **S. Meriani** Reinsch.
Reinsch: Algenflora v. Franken pag. 160, Tab. 12, fig. 1. Lo 39, La 26, Li 15,6.
Jameson Land.

19. **S. minutissimum** Reinsch.

forma: **trigona minor** Wille. Wille I: pag. 52, Tab. XIII, fig. 60. Lo 18—20, La 17—19, Li 9—10.

Kap Dalton. Börgesen I: Hekla Havn.

20. **S. monticulosum** Bréb.

β. **bifarium** Nordst. Börgesen I: pag. 29, Tab. II, fig. 25. Lo 39, La 37.

Jameson Land. Börgesen I: Hekla Havn.

21. **S. muricatum** Bréb.
Cfr. *S. trapezicum* Boldt II: pag. 35, Tab. II, fig. 46. Lo 44—46,8, La 42—43, Li 19—19,5. 4-gona.
Kap Dalton.

22. **S. muticum** Bréb.
Börgesen I: Hekla Havn.

23. **S. orbiculare** Ralfs.
Börgesen I: Hekla Havn.

24. **S. pachyrhynchum** Nordst.
forma: **3- et 4-gona**. Nordstedt III: pag. 32, Tab. VIII, fig. 34. Lo 28—34, La 22—26, Li 11—12.
Amaka, Kap Dalton, Jameson Land, Sabine Ö.
Börgesen I: Hekla Havn, Röde Ö.

25. **S. papillosum** Kirchn.
Börgesen I: Röde Ö.

26. **S. pilosum** Archer.
Börgesen I: Hekla Havn, Danmarks Ö.

27. **S. polymorphum** Bréb.
Ralfs I: Tab. XXII, fig. 9. 6-gona. Lo 38, La 39, Li 15.
Kordlortok.
Börgesen I: Hekla Havn. Boldt II: Tasiusak.

28. **S. proboscideum** Archer.
var. **altum** Boldt. Boldt I, pag. 117, Tab VI, fig. 34. Lo = La = 70, Li 16.
Liverpool Kyst.

29. **S. punctulatum** Bréb.
Ralfs I: Tab. XXII, fig. 1. Lo 28—29, La 29—29,9, Li 9.
Jameson Land, Fleming Inlet.

30. **S. pygmæum** Bréb.
var. **obtusum** Wille. Wille I: pag. 51, Tab. XIII, fig. 56.
forma: It resembles Wille's figure; but the corners are not denticulated. Lo 30,5—32,5, La 31,8—33,8, Li 8—10 (Fig. 5).

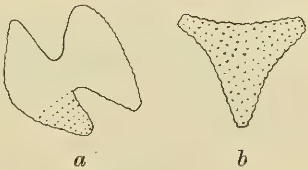


Fig. 5.
Staurastrum pygmæum Bréb. var *obtusum* Wille. forma.
a: Cellula a fronte.
b: Cellula a vertice.

Amaka, Tunok, Kap Borlase Warren.
Börgesen I: Hekla Havn. Boldt II: Tasiusak.

31. **S. saxonicum** Bulnh.
Börgesen I: Hekla Havn.

32. **S. scabrum** Bréb.
Boldt II: Tasiusak.

33. **S. Sebaldi** Reinsch.
forma: **groenlandica** Börgesen I: pag. 30, Tab. II, fig. 31.
Lo 65, La 72, Li 16.
Falkefjæld.
Börgesen I: Hekla Havn, Danmarks Ö.

34. **S. sibiricum** Borge.
Börgesen I: Hekla Havn.

35. **S. sp.** Nordst.
Nordstedt III: pag. 33, Tab. VIII, fig. 37. Lo = La = 10, Li 5.
Kap Dalton.

36. **S. spongiosum** Bréb.
Boldt I: pag. 118, Tab. VI, fig. 31, forma 3-gona. La 40, Lo 45.
Kap Dalton.
Börgesen I: Hekla Havn.

37. **S. subsphæricum** Nordst.
Nordstedt III: pag. 31, Tab. VIII, fig. 33. Lo 48, La 34, Li 20. forma 4-gona.
Kap Dalton.

38. **S. teliferum** Ralfs.
Delponte I: Tab. XI, fig. 1—4. Lo 36,4—39, La 31—32, Li 9—12.
Kordlortok, Amaka, Falkefjæld, Jameson Land.
Börgesen I: Hekla Havn, Danmarks Ö.

39. **S. tetracerum** Ralfs.
Börgesen I: Hekla Havn.

40. **S. vestitum** Ralfs.
Börgesen I: Danmarks Ö.

Tetmemorus Ralfs.

T. lævis Ralfs.

β. **attenuatus** Wille. Wille I: pag. 58, Tab. XIV, fig. 77.

Lo 78—87,7, La 24—26, Li ?—24.

Amaka, Kap Dalton.
Boldt II: Tasiusak.

Xanthidium Ehrb.

1. **X. antilopæum** Kütz.

γ. **dimazum** Nordst. Nordstedt II: pag. 38, Tab. I, fig. 19.

Lo 50, La 47, Li 13. Lo spin. c. 13.

Falkefjæld.
Börgesen I: Hekla Havn.

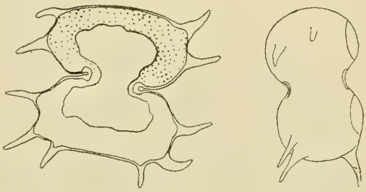
2. **X. cristatum** Bréb.

Boldt II: Tasiusak.

3. **X. fasciculatum** Ehrb.

Delponte I: Tab. XIII, fig. 20. Lo 57, La sine acul. 60,8, Li 13, Lo acul. 16,9.

Falkefjæld.



a b

Fig. 6.
Xanthidium antilopsum Kütz.
a: Cellula a fronte. *b*: Cellula a latere.

With regard to the distinction between the species *antilopæum* and *fasciculatum* I shall refer to Börgesen's report (Börgesen I, p. 23); not even the number of spines is always constant; I have seen specimens with four pair of spines on one semicell, and with six on the other (Fig. 6).

Zygnemaceae.

Zygnema De By.

Z. Cyanosporum Cleve.

De Toni I: pag. 729. La veg. cell. 22 μ. Diam. Spor. 33,8.

The spores were spherical or almost spherical, glabrous, and of a deep bluish black colour, or almost quite black. The spore is formed in the channel of conjugation.

Amaka.

Z. lejospermum De By.

Börgesen I: Hekla Havn.

Z. stellinum Ag.

Börgesen I: Hekla Havn.

Z. sp. Sterile Zygnemæ were found from almost all localities as far north as to Sabine Ö.

Spirogyra Link.

S. sp. Fructiferous Spirogyra were not at all found; Börgesen with some doubt mentions *S. insignis* Kg. (Börgesen I, p. 34) from Gaasefjord.

Mesocarpaceae.

Mougeotia Wittr.

Börgesen l. c. p. 35 with some doubt mentions *M. ovalis* Nordst. or *M. gelatinosa* Wittr. et Nordst., besides several sterile specimens. I did not find any fructiferous, but many sterile specimens from almost all localities.

II. Euchlorophyceae.

Palmellaceae.

Palmella Lyngb.

P. mucosa Kütz.

Börgesen I: Hekla Havn.

Tetraspora Link.

T. lubrica Ag.

Boldt III: Tasiusak.

Gloeocystis Näg.

G. rupestris Rab.

Börgesen I: Danmarks Ö.

Volvocaceae.

Pandorina Pringsh.

P. morum Müll.

Falkefjæld, Jameson Land, Kap Borlase Warren.
Börgesen I: Hekla Havn.

Eudorina Ehrb.

E. elegans Ehrb.

Börgesen I: Hekla Havn.

Sphærella Sommerf.

S. nivalis Sommerf.

Börgesen I: Hekla Havn, Danmarks Ö, Hold with Hope.

Protococcaceae.

Oocystis Näg.

O. solitaria Wittr.

Chodat I, pag. 191. Lo 16,9, La 10, Lo Col. 32,5.

Jameson Land.

Börgesen I: Hekla Havn, Röde Ö. Boldt II: Tasiusak.

Raphidium Kütz.

R. fasciculatum Kütz. + γ. **radiatum.**

Cfr. Chodat I: pag. 197—98. Lo 40, La 1,5

Kordlortok, Amaka, Jameson Land, Kap Borlase Warren.
Börgesen I: Hekla Havn.

Crucigenia Morren.

C. rectangularis (A. Br.) Chodat.

Chodat I: p. 206. Lo 7,8, La 5,2.

Kordlortok.

Scenedesmus Meyen.

1. **S. quadricauda** Bréb.

Chodat I: pag. 213. Lo cell. 18, La 6,5.

Tunok.
Börgesen I: Röde Ö.

2. **S. bijugatus** Kütz.

Chodat I: pag. 212 «**seriatus**». La 4—6.

Kordlortok, Amaka, Tunok, Jameson Land.
Börgesen I: Hekla Havn.

3. **S. denticulatus** Lagerh.

Börgesen I: Danmarks Ö.

Polyëdrium Näg.

1. **P. minutum** nov sp.

The cell has four arms narrowing off towards their apices. No spines. Lat. Cell. 19,5 μ. Lat. Brach. ad Bas. 4 μ. Fig. 7.

Kap Borlase Warren.

2. **P. angulosum** nov. sp.

The cell polygonous with roundish corners; in every corner two short spines. Diam. Cell. 18,5 μ. Fig. 8.

Kordlortok Amaka.


Fig. 7.


Fig. 8.

Fig. 7.
Polyëdrium minutum sp. nov.
Fig. 8.
Polyëdrium angulosum sp. nov.

Pediastrum Meyen

1. **P. Boryanum** Menegh.

var. **granulatum** Kirchn.
Tunok, Falkefjæld.
Boldt III: Tasiusak.

var. **granulatum** forma **forcipatum.** Raciborski I: fig. 16.
Falkefjæld.

var. **longicorne** forma **granulata.** Raciborski I: fig. 13. La cell. 14,3, Lo cell. cum spin. 22, Lo spin. 10,4 Diam. Coenob. 117.

Kordlortok, Amaka, Falkefjæld, Kap Borlase Warren.

var. **longicorne** ? forma **ordinata** nob.

The granulations occurring in regular rows along the dissepiments. La cell. 26—30 μ, Long. spin. 10—11 μ. Fig. 9.

Jameson Land.

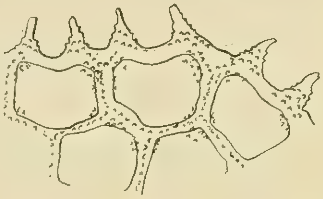


Fig. 9.
Pediastrum Boryanum Menegh. var. *longicorne* Rac. forma *ordinata* nob.
Fragment of Coenobium showing the granulation of the cell.

2. **P. rotula** A. Br.

Boldt III: Tasiusak.

3. **P. tricornutum** Borge.

Chodat I: pag. 230. Diam. cell. c. 8 μ.

Amaka, Sabine Ö.

Coelastrum Näg.

C. proboscideum Bohlin.

Senn I: Diam. Cell. 10—11 μ, Diam. Coenob. c. 35 μ.

Kordlortok, Amaka.

Ulothricaceae.

Ulothrix Kütz.

1. **U. subtilis** Kütz.

Chodat I: pag. 268. Hazen I: pag. 162, Tab. 21, fig. 11. La cell. 5,2.

Kap Dalton, Dunholm, Hurry Inlet, Sabine Ö.
Börgesen I: Hekla Havn.

2. **U. zonata** Kütz.

Börgesen I: Gaasefjord, Kap Stewart.

3. **U. variabilis** Kütz.

Hazen I: pag. 152, Tab. 21, fig. 5—7. La cell. 6—7 μ.

Dunholm.

Hormospora Bréb.

H. minor Näg.

Chodat I: pag. 270. Lat. fil. 15 μ. Diam. cell. 6,5 μ.

Kap Borlase Warren.

Pleurococcaceae.

Pleurococcus Menegh.

P. vulgaris Menegh.

Börgesen I: Danmarks Ö, Röde Ö, Gaaseland, Hekla Havn.

Acanthococcus Lagerh.

A. hirtus Lagerh.

Börgesen I: Hekla Havn.

Chlorococcus Fries.

C. humicola Rab.?

Börgesen I: Kobberpynt, Danmarks Ö, Kap Stewart.

Chætophoraceae.

Aphanochæte A. Br.

A. repens A. Br.

Chodat I: pag. 329. Diam. cell. veg. 8 μ.

On *Oedogonium*, Amaka.

Schizogoniaceae.

Prasiola Ag.

P. Sauteri Menegh.

Imhäuser I: pag. 276.

The exterior agrees with the narrow specimens of Jessen's figure (Jessen I, Tab. I, fig. 4—5). The thallus attains a length

of up to 32 mm. and a breadth of up to 2 mm. The diameter of the cell is 5—6,5 μ. Rhizoids from the basal part of the plant were found beautifully developed. Specimens in different

Fig. 10.

Prasiola Sauteri Menegh.

To the right: the basal part of a fully developed plant with rhizoids; at its base and to the left: young plants in different stages of development.

stages of development were belonging to the material (comp. Fig. 10) showing that the development is analogous to that of *P. stipitata*, as presumed by Imhäuser l. c.

Canning Land.

Schizogonium Kütz.

S. crispum Gay.

Stages of *Schizogonium* as well as of *Hormidium* were found in gatherings from Fleming Inlet and Kap Warming.

Börgesen I found the stage of *Schizogonium* at Röde Ö and Danmarks Ö.

Confervaceae.

Tribonema.

T. bombycinum Derb. et Sol.

La cell. 6,5—8,5 μ.

Kap Dan, Stenö, Kap Warming, Kap Dalton, Jameson Land, Kap Seaforth, Sabine Ö.

forma: **tenue** Hazen. Hazen I: pag. 185. La cell. 4,5 μ.
Jameson Land.
Börgesen I: Hekla Havn, Gaaseland.

Ophiocytium Näg.

O. parvulum A. Br.

Lat. fil. 6,5 μ.

Falkefjæld.

Microsporaceae.

Microspora Lagerh.

1. **M. pachyderma** Wille.

Lagerheim I: pag. 208. Lat. cell. 13—14 μ.

Sabine Ö.
Börgesen I: Hekla Havn, Kap Stewart.

2. **M. stagnorum** Lagerh.

Lagerheim I: pag. 208. Wille II. Lat cell. 7—9.

Falkefjæld, Jameson Land, Sabine Ö.

3. **M. tumidula** Hazen.

Hazen I: p. 177, Tab. 24, fig. 8—11. La 7,8.

Kap Dan.

Oedogoniaceae.

Oedogonium Link.

1. **O. crispum** Wittr.

Kordlortok, Amaka.

2. **O. capilleforme** forma: **De Baryanum** (Chmielevsky) Hirn.
Kordlortok, Amaka.

3. **O. grande** forma: **hortense** Wittr.
Kordlortok, Amaka.
Several sterile Oedogonia were moreover found from different localities. Cfr. Börgesen I: pag. 39.

Bulbochæte Ag.

1. **B. dispar** Wittr.
Kordlortok, Amaka.

2. **B. intermedia** De By.
Börgesen I: Hekla Havn.

3. **B. mirabilis** Wittr.
Kordlortok, Amaka.
With some doubt stated from Hekla Havn (Börgesen I).

4. **B. crassiuscula** Nordst.
Kordlortok, Amaka.

III. Siphoneae.

Vaucheriaceae.

Vaucheria De Cand.

1. **V. terrestris** Lyngb.
Börgesen I: Gaaseland.

2. **V. geminata** Walz.
With some doubt stated from Hekla Havn (Börgesen I).

B. Phæophyceae.

Hydrureae.

Hydrurus Ag.

H. foetidus Kirch.

Hurry Inlet, Jameson Land.
Börgesen I: Hekla Havn, Kap Stewart.

30—10—1904.

III.

Fungi Groenlandiæ orientalis

in expeditionibus G. Amdrup 1898—1902

a **G. Amdrup** (G. A.), **N. Hartz** (N. H.) et **C. Kruuse** (C. K.) collecti.

Determ. **E. Rostrup.**

1904.

Peronosporaceae.

1. **Peronospora Alsinearum** Casp.

Cerastium trigynum: Tasiusak (C. K.).

2. **Peronospora grisea** (Ung.) de Bary.

Veronica saxatilis: Tasiusak (C. K.).

Ustilaginaceae.

3. **Sphacelotheca Hydropiperis** (Schum.) de Bary.

Polygonum viviparum: Kap Borlase Warren, Hurry Inlet, Fame Ö, Kap Wandel, ad rivulum prope Angmagsalik, Kingorsuak (C. K.).

4. **Ustilago Caricis** (Pers.) Fuck.

Carex sp.: Kingua Hurry Inlet, Ikatek (C. K.). — *Carex rigida*: Amaga, Tasiusak (C. K.). — *Carex nardina*: Kordlortok, Tasiusak (C. K.). — *Elyna Bellardi*: Sarfakajik (C. K.).

5. **Ustilago vinosa** (Berk.) Tul.

Oxyria digyna: Eskimo Ö, Hurry Inlet, Kingak, Angmagsalik (C. K.).

6. **Tilletia arctica** Rostr.

Carex sp. Folia: Hurry Inlet (C. K.).

7. **Urocystis sorosporoides** Kke.

Thalictrum alpinum: Fleming Inlet (N. H.), Kap Dalton (C. K.).

Uredinaceae.

8. **Puccinia septentrionalis** Juel.

Polygonum viviparum: Kap Brown, Hurry Inlet, Turner Sund, Tasiusak, Kingorsuak (C. K.).

Thalictrum alpinum (Aecidium Sommerfeltii Joh.): Kakarsuak, Kingorsuak, Sarfakajik, Tasiusak (C. K.).

9. **Puccinia variabilis** (Grev.) Plowr.

Taraxacum phymatocarpon: Hurry Inlet (C. K.). — *Taraxacum croceum*: Tunok, Tasiusak (C. K.).

10. **Micropuccinia Saxifragae** (Schlect.).

Saxifraga cernua: Kap Stewart (C. K.). — *Saxifraga rivularis*: Kap Brewster (C. K.).

11. **Micropuccinia Epilobii** (DC.).

Epilobium alsinefolium: Surok, Tunok (C. K.). — *Epilobium anagallidifolium*: Tasiusak (C. K.). — *Chamaenerium angustifolium*: Tasiusak (C. K.).

12. **Micropuccinia Blyttii** (de Toni).

Sedum Rhodiola: Kumarmiut (C. K.).

13. **Micropuccinia Cruciferarum** (Rud.).

Vesicaria arctica: Jamesons Land (C. K.). — *Cardamine bellidifolia*: Kap Greg (N. H.).

14. **Leptopuccinia Veronicarum** (DC.).

Veronica alpina: Hurry Inlet, Kap Warming, Tasiusak (C. K.).

15. **Trachyspora Alchimillae** (Pers.) Schroet.

Alchimilla vulgaris: Tunok, Kakasuak, Tasiusarsik (C. K.).

16. **Melampsora arctica** Rostr.

Salix arctica: Kap Borlase Warren, Hurry Inlet, Fame Ö, Kap Brown, Kap Dalton (C. K.).

Auriculariaceae.

17. **Pilacre bubonis** n. sp. Stromatibus gregariis, stipitato-capitatis, albidis, 5—6 mm. altis, 1—2 mm. crassis; capitulo disciformi-depresso, levi, fusco; sporis ellipsoideis, 1-guttulatis, hyalinis, longit. 5—6 μ, crassit. 4 μ. In pilulae rejectae strigum.

Kap Dalton (N. H.).

Clavariaceae.

Sclerotia globoidea fusca, ad Typhulæ speciem ut videtur pertinentia, in caulibus Arabidis alpinæ, foliis Caricis rigidæ et foliis Poæ alpinæ lecta, ad Turner Sund (C. K.).

Thelephoraceae.

18. **Exobasidium Warmingii** Rostr.

Saxifraga oppositifolia: Kap Dalton (N. H.).

19. **Exobasidium Vaccinii** Wor.

Vaccinium uliginosum: Kangerdluarsikajik, Hurry Inlet, Kingorsuak, Sarfakajik (C. K.). Sporæ quam vulgo majores, nempe 16—18 μ l., 8—9 μ t. — *Cassiope tetragona*: Hurry Inlet, Turner Sund, Kingorsuak (C. K.).

Polyporaceae.

20. **Boletus scaber** Fr.

Hurry Inlet Kingua, Liverpool Kyst (C. K.).

Agaricaceae.

21. **Russuliopsis laccata** (Scop.) Schroet.

Tasiusak (C. K.).

Obs. In collectionibus expeditionis **Agaricaceæ** variæ exsiccatæ, indeterminabiles e generibus *Russulæ*, *Pholiotæ*, *Inocybes*, *Clitocybes* et *Cortinarii* inventæ sunt.

Gasteromycetes.

22. **Lycoperdon gemmatum** Batsch.

Kap Seaforth, Tasiusak. Var. *minuta*: Kap Brown, Lilleö, Ikatek (C. K.).

23. **Lycoperdon favosum** (Rostkov.) Bonord.

Hurry Inlet, Kingua, Liverpool Kyst, Kap Dalton (C. K.).

24. **Lycoperdon uteriforme** Bull.

Angmagsalik (C. K.).

25. **Globaria Bovista** (L.) Schroet.

Tasiusak (C. K.).

26. **Globaria furfuracea** (Schaeff.) Schroet.

Ikerasausak (C. K.).

Taphrinaceae.

27. **Taphrina carnea** Joh.
Betula nana: Huspynt (C. K.).

Erysiphaceae.

28. **Erysiphe graminis** DC.
Poa pratensis: Danmarks Ö (N. H.).

Sphaeriaceae.

29. **Asterella Chamaenerii** Rostr.
Chamaenerium latifolium: Hurry Inlet (C. K.).

30. **Laestadia rhytismoides** (Berk.) Sacc.
Dryas octopetala: Kap Dalton (N. H.).

31. **Coleroa Alchimillae** (Grev.) Wint.
Alchimilla vulgaris: Tasiusak (C. K.).

32. **Coleroa Oxyriae** Rostr.
Oxyria digyna: Adloe Kap Dan Öer $^{18}/_{1}$ 99.

33. **Sphaerella Tassiana** de Not.
Trisetum subspicatum: N. Aputitek (G. A.). — *Poa alpina*: Hurry Inlet, Kingorsuak (C. K.). — *Carex rigida*: Turner Sund (C. K.). — *Carex rariflora*: N. O. Bugt (N. H.).

34. **Sphaerella pusilla** Awd.
Carex rupestris: Turner Sund (C. K.).

35. **Sphaerella minor** Karst.
Chamaenerium latifolium: Hurry Inlet (C. K.).

36. **Sphaerella arthopyrenoides** Awd.
Papaver nudicaule: Kap Borlase Warren (C. K.), Forsbladfjord (N. H.).

37. **Sphaerella ootheca** Sacc.
Dryas integrifolia: Turner Sund (C. K.).

38. **Sphaerella Polygonorum** (Crié) Sacc.
Polygonum viviparum: Kingorsuak (C. K.).

39. **Sphaerella Stellarianearum** (Rbh.) Karst.

Cerastium alpinum: Kap Dalton (C. K.). — *Cerastium trigynum*: Kap Irminger (G. A.).

40. **Sphaerella inconspicua** Schroet.

In pedunculis et foliis *Cassiopis tetragonæ*: Turner Snnd, Kingorsuak (C. K.).

41. **Sphaerella Cruciferarum** (Fr.) Sacc.

Draba nivalis: Sabine Ö (N. H.).

42. **Sphaerella pachyasca** Rostr.

Draba hirta: Hurry Inlet, Kap Dalton. *Draba incana*: Hurry Inlet. *Draba fladnizensis*: Turner Sund. *Ranunculus affinis*: Sabine Ö. *Ranunculus nivalis*: Sabine Ö. *Chamaenerium latifolium*: Hurry Inlet (C. K.).

43. **Venturia ditricha** (Fr.) Karst.

Betula nana: Kap Irminger (G. A.).

44. **Leptosphaeria epicarecta** (Cooke) Sacc.

Carex saxatilis: Hurry Inlet (C. K.), Scoresby Sund (N. H.).

45. **Leptosphaeria Fuckelii** Niessl.

Calamagrostis neglecta: Kap Seaforth (N. H.).

46. **Leptosphaeria Silenes** de Not.

Silene acaulis: Tunok (C. K.).

47. **Pleospora herbarum** (Pers.) Rbh.

Calamagrostis neglecta: Hurry Inlet (N. H.). — *Draba nivalis*: Hurry Inlet (C. K.). — *Cardamine bellidifolia*: Kap Greg (N. H.). — *Ranunculus nivalis*: Sabine Ö (C. K.). — *Saxifraga hieraciifolia*: Scoresby Sund (C. K.). — *Polemonium humile*: Sabine Ö, Kap Borlase Warren (C. K.). — *Pedicularis hirsuta*: Turner Sund (C. K.). — *Campanula uniflora*: Kap Dalton, Turner Sund (C. K.). — *Erigeron neglectum*: Kap Borlase Warren (C. K.).

48. **Pleospora pentamera** Karst.

Elyna Bellardi: Sabine Ö (C. K.). — *Festuca ovina*: Kap Borlase Warren (C. K.). — *Luzula multiflora*: Sabine Ö (N. H.).

49. **Pleospora discors** (Mont.) Ces. et Not.
Carex rigida: Turner Sund (C. K.).

50. **Pleospora deflectens** Karst.
Poa abbreviata: Kap Borlase Warren (N. H.).

51. **Pleospora vagans** Niessl.
Phippsia algida: Turner Sund (C. K.).

52. **Pleospora Elynae** (Rbh.) Ces. et Not.
Juncus arcticus: Hurry Inlet (C. K.).

53. **Pleospora platyspora** Sacc.
Armeria sibirica: Hurry Inlet (C. K.).

54. **Pleospora Drabae** Schroet.
Draba alpina: Kap Borlase Warren. *Draba fladnizensis*: Kap Brewster (C. K.).

55. **Pyrenophora comata** (Niessl.) Sacc.
Alsine biflora: Turner Sund (C. K.).

56. **Ophiobolus brachystomum** Sacc.
Oxyria digyna: Turner Sund (C. K.).

57. **Didymosphaeria Cassiopes** Rostr.
Cassiope tetragona: Sabine Ö (C. K.).

Sordariaceae.

58. **Sordaria aviaria** (Karst.).
In fimo anserino: Turner Sund (N. H.).

59. **Sporormia heptamera** Awd.
In fimo anserino: Kap Seaforth (N. H.).

60. **Sporormia intermedia** Awd.
In fimo lupino: Kap Dalton (N. H.).

61. **Sporormia octomera** Awd.
In fimo anserino: Sabine Ö (N. H.).

Dothideaceae.

62. **Dothidella thoracella** (Rutstr.) Sacc.

Sedum Rhodiola: Tasiusak (C. K.).

63. **Dothidella Vaccinii** Rostr.

Vaccinium uliginosum: Sarfakajik (C. K.).

Hysteriaceae.

64. **Lophodermium juniperinum** (Fr.) de Not.

Juniperus alpina: Grus Ö, Kap Dan (C. K.).

65. **Lophodermium maculare** (Fr.) de Not.

Vaccinium uliginosum: Hurry Inlet (C. K.), Fleming Inlet, Kap Brown (N. H.), Kap Vedel (G. A.).

66. **Lophodermium arundinaceum** (Schrad.) Lév.

Poa sp., Calamagrostis neglecta: Kingorsuak (C. K.).

Phacidiaceae.

67. **Trochila Epilobii** Karst.

Chamaenerium angustifolium: Tasiusak (C. K.).

68. **Trochila ignobilis** Karst.

Carex sp.: Stenö, Ikatek (C. K.). — *Carex glareosa*: Kap Irminger (G. A.).

69. **Rhytisma salicinum** (Pers.) Fr.

Salix arctica: Forsblads Fjord (N. H.), Kap Brown (C. K.). — *Salix glauca*: Kardlortok Sö, Tasiusak (C. K.). — *Salix herbacea*: Kap Wandel (C. K.).

70. **Rhytisma Bistortae** (DC.) Rostr.

Polygonum viviparum: Ikatek (C. K.).

Bulgariaceae.

71. **Ombrophila Archangelicae** n. sp. Cupulis gregariis, carnosis, siccis corneis, sessilibus, concavis, rufo-violaceis, extus subtiliter furfuraceis, margine paululum crenulato, 2—4 mm. lat. Ascis cylindraceis, longit. 110—120 μ, crassit. 8—9 μ, pars

sporifer. 90—100 μ. Sporidiis monostichis, ellipsoideis, longit. 13 μ, crassit. 7 μ. Paraphysibus filiformibus.

Ad caules emortuos *Archangelicae officinalis*: Kingorsuak (C. K.).

Ascobolaceae.

72. **Ascobolus furfuraceus** Pers.

In fimo lupino: Kap Dalton (N. H.).

73. **Lasiobolus equinus** (Müll.) Karst.

In fimo lupino: Kap Dalton (N. H.).

74. **Ryparobius hyalinellus** (Karst.) Sacc.

In stercore: Kap Dalton (N. H.).

Pezizaceae.

75. **Lachnea scutellata** (L.).

Hurry Inlet (C. K.).

76. **Phialea virgultorum** (Vahl) Sacc.

In ramis ligneis: Tasiusak (C. K.).

77. **Mollisia graminis** (Desm.) Karst.

Poa glauca: Turner Sund (C. K.).

Sphaeropsideae.

78. **Phoma herbarum** West.

Cerastium sp.: Stenö (C. K.). — *Cerastium trigynum*: N. Aputitek (G. A.). — *Pedicularis hirsuta*: Turner Sund (C. K.).

79. **Asteroma alpinum** Sacc.

Arctostaphylos alpina: Kap Dalton (C. K.).

80. **Placosphaeria Bartsiae** Mass.

In foliis vivis *Bartsiae alpinae*: Tunok, Tasiusak (C. K.).

81. **Hendersonia Poae** n. sp. Peritheciis innatis, gregariis; conidiis compactis, cylindraceis, curvulis, fuscis, 3-septatis, obtusis, longit. 25—27 μ, crassit. 9—10 μ.

In foliis *Poae alpinae*: Fleming Inlet (C. K.).

82. **Septoria cercosperma** Rostr.

Ranunculus nivalis: Sabine Ö (N. H.). — *Ranunculus pygmaeus*: N. Aputitek (G. A.). — *Cerastium trigynum*: N. Aputitek (G. A.). — *Archangelica officinalis*: Angmagsalik. — *Taraxacum*: Angmagsalik. — In capsulis *Veronicae saxatilis*: Tasiusak (C. K.).

83. **Septoria semilunaris** Joh.

Poa glauca: Skærgaardshalvöen (G. A.).

84. **Rhabdospora longissima** Sacc.

Arabis alpina: Turner Sund (C. K.).

Melanconiaceae.

85. **Marssonia Chamaenerii** Rostr.

Chamaenerium angustifolium: Angmagsalik (C. K.).

Hyphomycetes.

86. **Oospora nivea** (Fr.) Sacc.

In fimo anserino: Kap Dalton (C. K.), Sabine Ö (N. H.).

87. **Aspergillus clavatus** Desm.

In fimo tetraonis: Grus Ö (C. K.).

88. **Torula herbarum** Link.

Chamaenerium latifolium: Turner Sund (C. K.).

89. **Cladosporium herbarum** (Pers.).

Rhodiola: Jærnö. — *Oxyria digyna*: Jamesons Land. — *Salix groenlandica*: Kap Dalton (C. K.).

90. **Cladosporium graminum** Cda.

Poa pratensis: Hurry Inlet (C. K.).

11—7—1904.

IV.

Lichenes

expeditionis G. Amdrup (1898—1902).

Enumeravit **Edv. A. Wainio.**

1905.

I. Discolichenes.

A. Cyclocarpeae.

Trib. 1. *Gyrophoreae.*

1. Umbilicaria.

1. **U. rugifera** Nyl., Lich. Scand. p. 117. *Gyrophora* Th. Fr., Lich. Scand. p. 156, pr. p. (excl. *U. stipitata* Nyl., quae speciem autonomam constituit secundum specimina orig. in herb. Nyl.).

In rupe prope Turner Sund (12 m.). N. 14. Fert.

2. **U. cylindrica** (L.) Dub.

Var. **Delisei** (Despr.) Nyl., Lich. Scand. p. 117. *Gyrophora* Th. Fr., Lich. Scand. p. 158.

In rupibus ad Kap Dalton, ad Turner Sund, n. 4, 6 (7 m.), 7 (8 m.), 13, et ad Lagunas meridionales in insula Jan Mayen. Fert.

3. **U. hyperborea** Hoffm. *Gyrophora hyperborea α. primaria* Th. Fr., Lich. Scand. p. 160.

In rupibus ad Turner Sund, n. 4, et in insula Jan Mayen. Fert.

4. **U. arctica** (Ach.) Nyl., Lich. Lapp. Or. p. 123. *Gyrophora hyperborea β. arctica* Th. Fr., Lich. Scand. p. 161.

In rupe granitica ad Fleming Inlet et ad Lagunas meridionales in insula Jan Mayen. Fert.

5. **U. proboscidea** (L.) D. C.

F. **subnuda** Wain.

Thallus subtus rhizinis fere destitutus. In rupibus in insula Jan Mayen. Fert.

Trib. 2. *Parmelieae.*

1. Usnea.

1. **U. sulphurea** (Koenig) Th. Fr., Lich. Spitsb. p. 9. *Neuropogon melaxanthus* Nyl., Syn. Lich. p. 272.

Var. **granulifera** Wain. in Exped. Antarct. Belge Lich. (1903) p. 11.

Thallus soraliis tuberculiformibus aut primum applanatis instructus. Stratum myelohyphicum crebrum, KHO non reagens.

In rupibus ad Kap Dalton (n. V, VI etc.) et prope Lagunas meridionales in insula Jan Mayen. Ster.

2. Alectoria.

1. **A. chalybeiformis** (L.) Nyl.

F. **intricans** Wain., Lich. Caucas. (1899) p. 276. *A. chalybeiformis* Nyl., Fl. 1869 p. 444.

Supra *Cetrariam aculeatam* et alios lichenes prope Lagunas meridionales in insula Jan Mayen. Ster.

2. **A. nigricans** (Ach.) Nyl.

Supra muscos et lichenes in rupibus in insula Jan Mayen et ad Kap Greg. Ster.

3. **A. ochroleuca** (Ehrh.) Nyl. *A. ochroleuca α. rigida* (Vill.) Th. Fr., Lich. Scand. p. 19.

Supra muscos in rupibus prope Lagunas meridionales in insula Jan Mayen. Ster.

4. **A. sarmentosa** Ach.

Var. **cincinnata** (Fr.) Nyl.

Supra muscos et lichenes in rupibus prope Lagunas meridionales in insula Jan Mayen. Ster.

3. Cetraria.

1. **C. hiascens** (Fr.) Th. Fr., Lich. Scand. p. 98. *C. Delisei* (Bory) Nyl., Lich. Lapp. Or. p. 79.

Var. **Delisei** (Bory) Wain. Laciniae thalli apicibus laceratis. Est forma typica hujus speciei.

Supra muscos et alias plantas destructas in insula Jan Mayen, in Henry Land (840 m.), in Skærgaards Halvöen (n. 35), prope Turner Sund et pluribus locis ad Kap Dalton (n. II, V, VI, etc.). Specimina lecta sterilia sunt.

Var. **fastigiata** (Del.) Nyl. in Norrl. Lich. Lapp. p. 323.

In rupe (12 m. s. m.) ad Turner Sund (n. 14). Ster.

2. **C. crispa** (Ach.) Nyl. Wain., Adj. Lich. Lapp. I p. 119.

Supra muscos prope Lagunas meridionales in insula Jan Mayen. Ster.

3. **C. aculeata** (Schreb.) Fr.

Prope Lagunas meridionales in insula Jan Mayen. Ster.

4. **C. hepatizon** (Ach.) Wain., Lich. Caucas. (1899) p. 278. *Cetraria Fahlunensis* Th. Fr., Lich. Scand. p. 108.

In rupe ad Turner Sund (n. 4). Ster. Medulla thalli KHO lutescens.

5. **C. Fahlunensis** (L.) Wain., Lich. Caucas. p. 278. *Platysma commixtum* Nyl.

Var. **Groenlandica** Wain.

Thallus dichotome repetito-laciniatus, laciniis elongatis, linearibus, circ. 0,5 mm. latis, leviter concavis aut partim planis, nitidis, fusco-fuligineis, esorediatis, increbre imbribatis, subtus et margine ciliis paucis increbris instructus. Medulla thalli KHO non reagens. Conceptacula pycnoconidiorum verruculas parum elevatas marginales formantia, ostiolo haud impresso, qua nota haec variatio a *Parmelia stygia* differt, cui ceterum habitu simillima est. Revera valde affinis est *Cetrariae Fahlunensi* (L.) Wain. (= *Plat. commixto* Nyl.), et ab ejus var. *tenuisecta* Th. Fr. laciniis longioribus latioribusque linearibus differt.

In rupe ad Kap Dalton. Ster.

6. **C. nivalis** (L.) Ach.

Ad plantas destructas in insula Jan Mayen, in Henry Land (840 m.), ad Kap Greg et Kap Dalton (n. VI). Ster.

7. **C. cucullata** (Bell.) Ach.

Ad Kap Greg. Ster.

4. Parmelia.

1. **P. saxatilis** (L.) Ach.

Ad rupem in insula Jan Mayen. Ster.

2. **P. omphalodes** (L.) Ach.

Var. **panniformis** Ach.

In rupe et supra alios lichenes rupium et ad lignum in insula Jan Mayen. Ster.

3. **P. pubescens** (L.) Wain., Lich. Caucas. p. 281. *P. lanata* Wallr., Nyl., Lich. Scand. p. 103.

Ad rupem in insula Jan Mayen, supra muscos in rupe ad Kap Dalton, ad alios lichenes et supra rupem prope Fleming Inlet. Ster.

Trib. 3. *Thamnolieae.*

1. Thamnolia.

1. **Th. vermicularis** (Sw.) Schaer., Enum. Lich. Eur. p. 243; Nyl., Syn. Lich. p. 264; Minks, Fl. 1874 p. 337; Cromb., Brit. Lich. p. 185. *Cladonia* (?) Th. Fr., Lich. Arct. p. 161.

Supra terram arenosam ad Hurry Inlet et supra muscos in rupe ad Lagunas meridionales in insula Jan Mayen. Ster.

Trib. 4. *Stereocauleae.*

1. Stereocaulon.

1. **St. alpinum** Laur.

Supra muscos rupium et in ipsa rupe locis numerosis in insula Jan Mayen, in Henry Land (840 m. s. m.) et in Kap Greg. Ster.

2. **St. evolutum** Graewe in Bot. Not. 1865 p. 181; Th. Fr., Lich. Scand. p. 45.

In rupe ad Kap Dalton. Ster. Thallo glabro a *St. alpino* differt.

Trib. 5. *Lecanoreae.*

1. Lecanora.

1. **L. (Candelariella) vitellina** (Ehrh.) Ach.

Supra terram arenosam et in rupe ad Fleming Inlet et ad

Turner Sund (n. 4 et 16). Fert. — Asci polyspori. Thallus KHO non reagens. Apothecia margine crenulato, esorediato.

2. **L. (Fulgensia) bracteata** (Hoffm.) Ach.

Var. **alpina** Th. Fr., Lich. Scand. p. 223 (Lich. Arct. 1860 p. 81).

Ad terram arenosam prope Hurry Inlet (n. I). Ster.

3. **L. (Squamaria) alphoplaca** (Wahlenb.) Ach., Nyl., Fl. 1873 p. 18; Wain., Lich. Caucas. p. 286.

Thallus KHO superne lutescens et demum rubescens, intus non reagens.

In rupe ad Forsblads Fjord. Fert.

4. **L. (Eulecanora) atrosulphurea** (Wahlenb.) Ach.

Var. **normalis** Th. Fr., Lich. Scand. p. 257.

Ad lignum vetustum in insula Jan Mayen. Fert.

5. **L. polytropa** (Ehrh.) Th. Fr.

Var. **vulgaris** Flot.

In rupe ad Turner Sund (4 m.) et ad Fleming Inlet. Fert.

6. **L. (Aspicilia) calcarea** (L.) Sommerf.

Var. **contorta** (Hoffm.) Hepp.

In rupe ad Turner Sund (n. 10), 2000 p. s. m. Thallus KHO non reagens. Fert.

7. **L. gibbosa** (Ach.) Nyl.

Var. **subdepressa** Nyl.

In rupe in insula Jan Mayen. Fert. Thallus KHO non reagens.

8. **L. verrucosa** (Ach.) Laur., Th. Fr., Lich. Scand. p. 273.

Supra plantas destructas ad Kap Dalton (L. V) et ad terram arenosam loco haud indicato (in insula Jan Mayen) n. 318 A. Fert. Thallus KHO non reagens.

2. Placopsis.

1. **Pl. gelida** (L.) Nyl., Lich. Lapp. Or. p. 126 (conf. Wain., Lich. Nov. Rar. II, 1899, p. 186). *Lecanora* Th. Fr., Lich. Scand. p. 228.

Ad lapides vulcanicos in insula Jan Mayen.

3. Ochrolechia.

1. **O. tartarea** (L.) Mass.

Var. **saxorum** (Retz.) Wain. *Lichen saxorum* Retz., Fl. Scand. Prodr. ed. II (1795) p. 276.

Thallus crassus, subcontinuus, demum vulgo sorediosus, KHO passim leviter lutescens, $CaCl_2O_2$ intus parum aut leviter rubescens, at his reagentiis unitis intus bene rubescens. Medulla jodo passim leviter caerulescens, partim non reagens. Est forma typica hujus speciei.

Supra muscos in rupe in insula Jan Mayen et ad Fleming Inlet.

Var. **inspersa** Wain.

Thallus verruculas dispersas, subglobosas, circ. 0,2—0,4 mm. latas formans, neque KHO, nec $CaCl_2O_2$, nec his reagentiis unitis reagens, esorediatus. Apothecia circ. 2,5—1,2 mm. lata, disco nudo, pallido, KHO lutescente, $CaCl_2O_2$ non reagente aut levissime rubente, at his reagentiis unitis bene rubente, margine his reagentiis non reagente.

Supra *Racomitrium lanuginosum* ad rupem in monte Hoyberg in insula Jan Mayen. Fert.

Var. **frigida** (Sw.) Ach.

Medulla thalli jodo leviter caerulescens. Hypothallus in spinulas erectas continuatus.

Supra lichenes et muscos in monte Hoyberg in insula Jan Mayen. Ster.

Trib. 6. *Pertusarieae.*

1. Pertusaria.

1. **P. oculata** (Dicks.) Th. Fr., Lich. Scand. p. 307.

Supra muscos destructos in rupe montis Hoyberg in insula Jan Mayen. Ster.

Trib. 7. *Theloschisteae.*

1. Xanthoria.

1. **X. polycarpa** (Ehrh.) Wain. ***X. lychnea** (Ach.) Wain.

Ad lapides in Kap Dalton (n. 1). Ster.

2. Placodium.

1. **Pl. elegans** (Link) D. C. ***Pl. granulosum** (Schaer.) Wain., Lich. Sibir. Merid. (1896) p. 12.

In rupe ad Fleming Inlet et Turner Sund, 2000 ped. s. m. (n. 12 et 13). Ster.

2. **Pl. verruculiferum** Wain.

Thallus arcte adnatus, radiato-laciniatus, laciniis circ. 0,8—0,3 mm. latis, superne convexis, circ. 0,4—0,6 mm. crassis, superne fulvescens, neque pruinosus, nec lacunosus, centrum versus isidiis brevibus globosis verruculaeformibus minutis instructus. Habitu simile est *Pl. Heppiano* (Müll. Arg.) Wain., Lich. Cauc. p. 295, at isidiis ab eo differens et forsan ejus subspecies.

Ad lapidem vulcanicum in insula Jan Mayen. Ster.

3. **Pl. cerinum** (Ehrh.) Wain., Lich. Caucas. p. 296. *Lecanora pyracea* Nyl., Lich. Lapp. Or. p. 129.

***Pl. vitellinulum** (Nyl.) Wain.

Ad lapidem vulcanicum in insula Jan Mayen. Fert.

4. **Pl. jungermanniae** (Vahl) Wain., Lich. Caucas. p. 298.

Var. **genuina** Th. Fr., Lich. Scand. p. 179.

Supra muscos destructos iu rupe ad Turner Sund (n. 13). Fert.

Var. **subolivacea** Th. Fr., Lich. Scand. p. 180.

Ad plantas destructas in Kap Dalton (n. V). Fert.

5. **Pl. ferrugineum** (Huds.) Hepp.

Var. **bryacea** Wain., Adj. Lich. Lapp. I p. 144.

A *Pl. jungermanniae* colore apotheciorum differt et simile est *Pl. ferrugineo.*

Supra muscos destructos in rupe ad Kap Dalton. Fert.

6. **Pl. tetraspora** (Nyl.) Wain. Lecanora Nyl., Lich. Lapp. Or. p. 397.

Supra muscos destructos in rupe ad Lagunas meridionales in insula Jan Mayen et in Canning Land. Fert.

Trib. 8. *Buellieae.*

1. Physcia.

1. **Ph. stellaris** (L.) Nyl. ***Ph. tribacia** (Ach.) Wain., Adj. Lich. Lapp. I p. 135.

Ad lapides in Kap Dalton (n. V) et ad Turner Sund (n. 11). Ster.

2. **Ph. pulverulenta** (Schreb.) Wain. ***Ph. muscigena** (Ach.) Wain., Adj. Lich. Lapp. I p. 131.

In rupe ad Kap Dalton. Ster.

2. Rinodina.

1. **R. mniaraea** (Ach.) Th. Fr., Lich. Scand. p. 194.

Var. **normalis** Th. Fr., l. c.

Supra plantas destructas ad Turner Sund, 2 m. s. m. (n. 1). — Apothecia nuda. Epithecium rubescens. Hypothecium albidum, inferne fuscescens. Sporae long. circ. 0,032, crass. 0,014 mm., endosporio inaequaliter incrassato, ad apicem et septum crassiore.

2. **R. archaea** (Ach.) Wain. *Parmelia sophodes γ. archaea* Ach., Meth. Lich. (1803) p. 156. *Lichen turfaceus* Wahlenb., Lich. Lapp. (1812) p. 408. *Lecanora turfacea* Wain., Adj. Lich. Lapp. I p. 153.

Var. **orbata** (Ach.) Wain. (l. c.).

Supra muscos destructos in insula Jan Mayen et ad Kap Dalton (n. V) et ad Turner Sund (n. 9). Fert.

3. Buellia.

1. **B. disciformis** (Fr.) Br. et Rostr.

Var. **insignis** (Naeg.) Wain., Adj. Lich. Lapp. II p. 112.

F. **muscorum** (Schaer.) Wain., l. c. p. 113.

Supra muscos destructos in monte Hoyberg in insula Jan Mayen. Sporae 8:nae, fuligineae, 1-septatae, long. 0,024—0,030, crass. 0,11—0,12 mm.

F. **albocincta** Th. Fr., Lich. Scand. p. 591. Wain., Adj. Lich. Lapp. II p. 113.

Supra plantas destructas ad Turner Sund, 8 m. s. m. (n. 7). Fert. Sporae long. circ. 0,028, crass. 0,012 mm.

2. ***B. lauricassiae** (Fée) Wain., Lich. Welw. p. 413. *Lecidea triphragmia* Nyl., Prodr. Lich. Gall. p. 141.

Sporae hujus speciminis long. 0,016—0,022, crass. 0,007—0,006 mm., 3-septatae, fuscofuligineae.

Supra muscos destructos in Canning Land. Fert.

3. **B. punctiformis** (Hoffm.) Mass. Wain., Lich. Caucas. p. 305. *B. myriocarpa* Th. Fr., Lich. Scand. p. 595.

F. **stigmatea** (Koerb.) Wain., Adj. Lich. Lapp. II p. 114.

Supra plantas destructas (excrementa) ad Kap Dalton (n. V) et ad lapides vulcanicos in insula Jan Mayen. — Sporae membrana aequaliter incrassata.

F. **punctata** (Koerb.) Wain., l. c.

In rupe ad Fleming Inlet.

4. **B. Groenlandica** Wain. (n. sp.).

Thallus tenuis, verrucoso-areolatus, dispersus, areolis sordide cinerascentibus, KHO non reagentibus, hypothallo nigricante tenui distincto. Medulla jodo non reagens. Apothecia minuta, 0,2—0,15 mm. lata, demum adnata, nigra, nuda, disco plano aut vulgo demum umbonato, margine tenui, persistente aut demum excluso. Hypothecium fusco-nigrum. Excipulum fuscofuligineum. Sporae 8:nae, distichae, pulchre polari-dyblastae, ellipsoideae, septo crasso (poro instructo), membrana ceterum aequaliter incrassata, long. 0,012—0,014, crass. 0,007—0,008 mm. Hymenium jodo persistenter caerulescens. — Habitu similis est *B. punctiformi* f. *punctatae* (Koerb.), at disco saepe umbonato et sporis polaridyblastis ab ea differens.

Supra lapidem ad Turner Sund, 7 m. s. m. (n. 6).

Trib. 9. *Peltigereae.*

1. Peltigera.

1. **P. aphthosa** (L.) Hoffm.

Supra muscos et alias plantas destructas ad Kap Dalton (n. III, V) et Hurry Inlet in Kingua (n. II, IV). Fert.

2. **P. canina** (L.) Hoffm.

Supra muscos rupium prope Lagunas meridionales in insula Jan Mayen. Supra muscos vigentes et destructos in Sabine Ö (n. 193, 232 b), ad Hurry Inlet (n. 1), Kap Borlase Warren (n. 274 b), Fleming Inlet, Turner Sund (n. 2, 9), Kap Dalton (n. III, 380). Fert.

2. Nephroma.

1. **N. arcticum** (L.) Fr.

Supra muscos et lichenes vigentes et destructos rupium in monte Hoyberg in insula Jan Mayen. Ster.

3. Solorina.

1. **S. crocea** (L.) Ach.

Supra muscos destructos rupium in monte Hoyberg in insula Jan Mayen et ad terram arenosam ad Hurry Inlet in Liverpool Kyst (n. III). Fert.

2. **S. octospora** Arn.

Supra muscos destructos rupium ad Fleming Inlet. Fert.

3. **S. bispora** Nyl., Syn. Lich. p. 334; Wain., Lich. Caucas. p. 307.

Sporae binae, long. 0,070—0,106, crass. 0,030—0,046 millim., 1-septatae, fusco-rufescentes, medio constrictae. Gonidia leptogonidia, vulgo ellipsoidea, simplicia, guttulas oleosas continentia, membrana tenuissima, long. circ. 0,007—0,005, crass. 0,004—0,003 mm.

Ad muscos destructos et terram arenosam prope Lagunas meridionales in insula Jan Mayen et Sabine Ö (n. 211 a) et ad Forsblads Fjord. Fert.

Trib. 10. *Pannarieae.*

1. Parmeliella.

1. **P. lepidiota** (Sommerf.) Wain., Lich. Caucas. p. 309.

F. **tristis** Th. Fr., Lich. Arct. p. 74.

In hoc specimine apothecia (microscopio visa) lecideina, margine proprio tenui, excipulo proprio thallo immerso, in parte exteriore e stratis pluribus sat grosse cellulosis parenchymaticis formato, at

demum habitu lecanorina aut zeorina, thallo marginem thallodem crenulatam, discum superantem formante cincta. Sporae simplices.

Supra muscos destructos ad rupem in monte Hoyberg in insula Jan Mayen. Fert. — Parce haec species (f. *primaria* Wain.) etiam ad Turner Sund lecta est (n. 9 pr. p.).

2. Psoroma.

1. **Ps. hypnorum** (Hoffm.) Fr.

Supra plantas destructas et terram arenosam in rupibus ad Kap Dalton (n. V) et Turner Sund (n. 6, 7) et in monte Hoyberg in insula Jan Mayen. Fert.

Trib. 11. *Collemeae.*

1. Leptogium.

1. **L. lacerum** (Sw.) Koerb.

F. **majus** Koerb.

Supra plantas destructas in rupe ad Kap Dalton (n. V). Ster.

Trib. 12. *Lecideae.*

1. Cladonia.

1. **Cl. rangiferina** (L.) Web.

Supra et inter muscos in monte Hoyberg in insula Jan Mayen. Ster.

2. **Cl. sylvatica** (L.) Rabenh.

Var. **sylvestris** Oed. Wain., Mon. Clad. I p. 20, III p. 222.

Supra et inter muscos in monte Hoyberg in insula Jan Mayen. Ster.

Modif. **spumosa** Floerk. Wain., Mon. Clad. I p. 27.

In hoc specimine ramuli apicales parcissime nutantes. Gelatina pycnoconidiorum materiam coccineam haud continens, qua nota certe a *Cl. alpestri* differt.

Ad Kap Dalton. Ster.

3. **Cl. coccifera** (L.) Willd.

Var. **stemmatina** Ach.

Supra muscos destructos ad Kap Dalton (n. VI), Turner Sund (n. 6) et Hurry Inlet in Liverpool Kyst (n. IV). Cum apotheciis male evolutis.

Var. **pleurota** (Floerk.) Schaer.

Supra muscos destructos ad Turner Sund, 8 m. s. m. (n. 7). Ster.

4. **Cl. amaurocraea** (Floerk.) Schaer.

F. **oxyceras** Ach. Wain., Mon. Clad. Univ. I p. 249, 254, III p. 232.

Supra et inter muscos ad Lagunas meridionales et in monte Hoyberg in insula Jan Mayen. Ster.

5. **Cl. cariosa** (Ach.) Spreng.

Modif. **pruniformis** Norm. Wain., Mon. Clad. Univ. II p. 52, III p. 248.

Supra terram humosam ad Turner Sund (n. 9). Parce etiam fertilis.

6. **Cl. gracilis** (L.) Willd.

Var. **chordalis** (Floerk.) Schaer.

Ad plantas destructas in monte Hoyberg in insula Jan Mayen. Fert.

7. **Cl. cerasphora** Wain., Mon. Clad. Univ. II p. 167, III p. 257.

F. **stricta** Wain., l. c. II p. 169, III p. 257.

Inter Racomitrium lanuginosum in rupe ad Lagunas meridionales in insula Jan Mayen. Ster. — Podetia KHO lutescentia.

8. **Cl. pyxidata** (L.) Fr.

Var. **neglecta** (Floerk.) Mass.

Supra muscos destructos ad Kap Borlase Warren (n. 274 b). Ster.

Var. **chlorophaea** Floerk.

Supra plantas destructas ad Fleming Inlet et ad Lagunas meridionales in insula Jan Mayen. Ster.

9. **Cl. fimbriata** (L.) Fr.

Modif. **minor** (Hag.) Wain., Mon. Clad. Univ. II p. 258, III p. 253.

Supra plantas destructas ad Turner Sund (n. 1, 5). Ster.

2. Lecidea.

1. **L. (Lopadium) pezizoidea** Ach.

Var. **muscicola** (Sommerf.) Th. Fr., Lich. Scand. p. 389; Wain., Adj. Lich. Lapp. II p. 123.

Supra plantas destructas in rupe ad Turner Sund, 2 m. s. m. (n. 7). Fert.

2. **L. (Rhizocarpon) geographica** (L.) Fr.

In saxis et rupibus ad Fleming Inlet et in insula Jan Mayen. Fert.

3. **L. concreta** (Ach.) Wain., Lich. Caucas. p. 319.

F. **geminata** (Flot.) Wain., l. c.

In saxis et rupibus ad Fleming Inlet, Turner Sund, 2000 ped. s. m. (n. 10 et 12), Kap Dalton (n. III) et in Insula Jan Mayen. Fert.

4. **L. (Psora) rubiformis** Wahlenb.

Ad terram arenosam in fissuris rupium ad Turner Sund (n. 13). Fert.

5. **L. (Biatora) cuprea** Sommerf.

In hoc specimine excipulum in margine incoloratum, ex hyphis radiantibus pachydermaticis conglutinatis, lumine angusto instructis formatum. Hypothecium dilute fuscescens, passim pallide fuscescens. Hymenium decoloratum, granulis nullis, jodo caerulescens, dein vinose rubens. Paraphyses arcte cohaerentes. Sporae parcissime visae, simplices, decolores, long. 0,010, crass. 0,0035 mm. Apothecia disco fusco vel fusco-nigricante convexo, margine vulgo pallidiore. Thallus albidus, sat continuus, sat tenuis, verruculoso-inaequalis.

Supra muscos destructos in rupe in Canning Land.

6. **L. (Eulecidea) goniophila** Floerk.

***L. latypiza** Nyl.

Thallus in hoc specimine dispersus, tenuis, KHO lutescens. Excipulum extus caeruleo-smaragdulo-fuligineum, intus subalbidum. Hypothecium obscure fulvescens aut fulvo-fuscescens. Epithecium caeruleo-smaragdulo-fuligineum. Paraphyses sat arcte cohaerentes. Sporae ellipsoideae, simplices, decolores.

Ad lapidem in Kap Dalton (n. VI).

7. **L. glomerulosa** D.C.

F. **Laureri** (Hepp) Wain., Adj. Lich. Lapp. II p. 93.

Ad lignum vetustum in insula Jan Mayen.

F. **euphorea** (Floerk.) Wain., l. c. p. 94.

Ad lignum vetustum in insula Jan Mayen.

8. **L. subcongrua** Nyl., Fl. 1874 p. 11; Wain., Adj. Lich. Lapp. II p. 97.

Excipulum extus in margine smaragdulo-caerulescens, basi superne smaragdulo-caerulescens, inferne violaceo-fuligineum. Hypothecium albidum. Epithecium caeruleo-smaragdulum. Paraphyses arcte cohaerentes.

Ad lapides prope Turner Sund usque ad 2000 ped. s. m. (n. 12 et 4).

9. **L. assimilata** Nyl., Lich. Scand. p. 221.

F. **irrubata** Th. Fr., Lich. Scand. p. 522; Wain., Adj. Lich. Lapp. II p. 85.

Ad terram arenosam et muscos destructos in Kap Dalton.

10. **L. limosa** Ach. Th. Fr., Lich. Scand. p. 538.

Ad terram arenosam et muscos destructos in Kap Dalton (n. V).

11. **L. paupercula** Th. Fr., Lich. Scand. p. 482; Wain., Adj. Lich. Lapp. II p. 51.

In rupe ad Fleming Inlet et in insula Jan Mayen.

12. **L. Dicksonii** Ach. Th. Fr., Lich. Scand. p. 516. *L. atroferrata* Deichm. Br., Enum. Lich. Groenl. p. 503.

In rupibus et lapidibus ad Turner Sund, 7 m. s. m. (n. 6) et in insula Jan Mayen.

13. **L. lapicida** (Ach.) Wain., Adj. Lich. Lapp. II p. 55.

Var. **declinans** Nyl., Lich. Scand. p. 226.

Thallus cinerascens, KHO non reagens, medulla jodo caerulescens. Excipulum extus fuscescens, intus pallidum. Hypothecium dilute fuscescens. Epithecium smaragdulo-caerulescens.

Ad rupem in insula Jan Mayen.

Trib. 13. *Acarosporeae.*

1. Acarospora.

1. **A. glaucocarpa** (Wahlenb.) Koerb.

Ad lapidem vulcanicum in Kap Dalton (n. II). Fert.

2. **A. fuscata** (Schrad.) Arn.

Var. **smaragdula** (Wahlenb.) Wain.

Ad lapidem vulcanicum in insula Jan Mayen. Fert.

3. ***A. discreta** (Ach.) Th. Fr.

In rupe ad Fleming Inlet. Fert.

2. Thelocarpon.

1. **Th. epibolum** Nyl., Fl. 1866 p. 420; Wain., Lich. Caucas. p. 331.

Supra partes mortuas *Solorinae octosporae* Arn. ad Fleming Inlet.

B. Hysterieae.

Trib. 1. *Graphideae.*

1. Xylographa.

1. **X. parallela** (Ach.) Fr. Wain., Lich. Caucas. p. 334.

Var. **difformis** Wain., Adj. Lich. Lapp. II p. 148.

Gonidia thalli cystococcoidea, globosa, simplicia, membrana crassitudine mediocri. Perithecium sordide pallidum. Hypothecium albidum. Hymenium jodo caerulescens, dein sordide vinose rubens. Paraphyses apice ramosae, haud connexae. Asci clavati. Sporae 8:nae, distichae, simplices, decolores, oblongae, long. 0,010—0,012, crass. 0,004—0,005 mm.

Ad lignum vetustum in insula Jan Mayen.

C. Coniocarpeae.

Trib. 1. *Sphaerophoreae.*

1. Sphaerophorus.

1. **Sph. fragilis** (L.) Koerb.

Ad rupem in monte Hoyberg in insula Jan Mayen. Ster.

II. Pyrenolichenes.

1. Dermatocarpon.

1. **D. (Endopyrenium) cinereum** (Pers.) Th. Fr. *Verrucaria tephroides* (Ach.) Nyl., Lich. Scand. p. 267.

Supra terram arenosam ad Turner Sund (n. 13). Fert.

2. Verrucaria.

1. **V. aethiobola** Ach. Wain., Adj. Lich. Lapp. II p. 173.

Ad lapidem vulcanicum in insula Jan Mayen.

Ad formam atypicam pertinet thallo sordide albicante disperso sat tenui instructam. Sporae long. 0,026, crass. 0,013 mm.

3. Endocarpon.

1. **E. pulvinatum** Th. Fr., Lich. Arct. p. 257. *Dermatocarpon* Koerb., Parerg. Lich. Germ. p. 308; Wain., Adj. Lich. Lapp. II p. 166.

Gonidia thalli pleurococcacea. Gonidia hymenialia stichococcacea, long. 0,012—0,004, crass. 0,0045—0,0025 mm. Amphithecium extus fuscescens, gonidia pleurococcacea continens. Perithecium decoloratum vel pallidum. Periphyses bene evolutae.

In rupe ad Turner Sund, 2000 ped. s. m. (n. 12 et 13). Fert.

4. Staurothele.

1. **St. clopima** (Ach.) Th. Fr., Lich. Arct. p. 263; Wain., Lich. Caucas. p. 339.

In rupe ad Fleming Inlet et ad Turner Sund, 2000 ped. s. m. (n. 10 et 12).

5. Polyblastia.

1. **P. terrestris** Th. Fr., Polybl. Scand. p. 15.

Thallus bene evolutus, sat crassus, verrucoso-inaequalis, cinerascens. Apothecia amphithecio thallino obducta, vertice denudato nigro vulgo leviter impresso. Perithecium fuligineum, integrum, globosum. Sporae 8:nae, murales, decolores, demum pallidae, long. 0,040—0,052, crass. 0,022—0,024 mm.

Ad saxa friabilia laxe affixa in Kap Dalton (n. V).

2. **P. pseudomyces** (Norm.) Th. Fr., Polybl. Scand. p. 26. *Staurothele* Norm., Vet. Akad. Förh. 1870 p. 805.

Thallus tenuis, nigricans. Apothecia hemisphaerica. Perithecium globosum, fusco-fuligineum, integrum. Nucleus jodo vinose rubens. Sporae 8:nae, fuscescentes, ellipsoideae aut oblongae, murales, cellulis paucis, long. 0,014—0,015, crass. 0,007—0,008 mm. Thallus algas varias, praesertimque micaroideas continens.

Supra terram humosam ad Turner Sund, 12 m. s. m. (n. 14).

Pharcidia.

1. **Ph. lichenum** Arn., Lich. Tirol VIII p. 302, XXI p. 153; Wain., Lich. Caucas. p. 342.

Supra thallum *Lecideae rubiformis* Wahlenb. ad Turner Sund (n. 13). — Ad fungos pertinet. Sporae long. 0,014, crass. 0,006 mm., 1-septatae, ovoideae, decolores, 8:nae, distichae, septo in medio. Paraphyses haud evolutae.

11—7—1904.

V.

List

of the phanerogams and vascular cryptogams found on the coast 75°—66°20′ lat. N. of East Greenland.

By

Chr. Kruuse.

1905.

The basis of this list are the plants collected by N. Hartz and the author on the Danish expedition to East Greenland in 1900; the older statements from the former expeditions to these regions have also been embodied viz.: Scoresby, Sabine, Zweite deutsche Nordpolarfahrt (Copeland and Pansch), den danske Expedition 1891—92 (N. Hartz), den svenske Expedition 1899 (A. G. Nathorst and P. Dusén), den danske Baadexpedition 1898—99 (Chr. Kruuse), den danske Baadexpedition 1900 (C. G. Amdrup).

During a visit in Stockholm and Upsala 1904 the author had opportunity of going through the great collections from these regions preserved in Kgl. Vetenskaps Akademien and the University of Upsala, and as a matter of course I have gone through the great Greenland herbarium in the botanical Museum of Copenhagen.

As to the limitation of the species I have followed Joh. Lange's Conspectus Floræ Grœnlandicæ with the alterations necessitated by the works of later inquirers, especially Gelert and Ostenfeld: Flora arctica I and Gelert: Notes on arctic plants (Botanisk Tidsskrift. Bd. 21).

On the coast of East Greenland, 75°—66°20′ lat. N., there are collections from the following places:

A. Northern coast-part between 75° and 73°30′ lat. N. Shannon Ø.

B. Northern inlet-part between 73°30′ and 70°20′ lat. N.

C. The Scoresby Sund-part comprises Inlet-localities between 71°30′ and 70° lat. N.

D. The Kap Dalton-part comprises localities between 70° and 69°25′ lat. N.

E. Southern coast-part comprises localities between 69°25′ and 66°20′ lat. N.

The finder is stated in a parenthesis after the locality in the following way:

A. = C. G. Amdrup
C. & P. = Copeland and Pansch
D. = P. Dusén
H. = N. Hartz
K. = Chr. Kruuse.
A. G. N. = A. G. Nathorst.

A. "!" behind the names signifies that I have seen the specimens.

A. Northern coast-part between 75°—73°30′ lat. N.

	lat. N.
Shannon Ö	75°
Kuhn Ö	75°
Store og Lille Pendulum Öer	74° 30′
Sabine Ö	74° 30′
Hvalros Ö	74° 30′
Dronning Augusta Dal	74° 25′
Kap Borlase Warren	74° 15′
Clavering Ö	74° 10′
Hold with hope	73° 30′

B. Northern inlet-part from 73°30′—70°20′ lat. N.

	lat. N.
Kap Bennet	73° 28′
Franz Joseph Fjord	73° 30′-73°10′
Moskusoxefjord	73° 30′
Bontekoe Ö	73° 10′
Kjerulf Fjord	73° 10′
Ruth Ö	73° 5′

	lat. N.
Sophia Stræde	72° 55′
Röhs Fjord	72° 40′
Forsblad Fjord	72° 30′
Polhem Dal	72° 30′
Scott Keltic Ö	72° 48′
Kap Parry	72° 30′
Mackenzie Bugt	72°
Antarctic Havn	72°
Örsteds Dal	71° 49′
Kap Brown	71° 48′
Fleming Inlet	71° 40′
Pingels Dal	71° 38′
Kap Fletcher	71° 36′
Murrays Ö	71° 32′
Kap Greg	70° 58′

C. The Scoresby Sund-part comprises the inlet-localities between 71°30′ and 70° lat. N.

	lat. N.
Klitdalen	70° 53′-58°
Vargodden	70° 51′
The Liverpool Kyst side of Hurry Inlet	70° 50′
The Jameson Land side Nathorst Fjeld	70° 48′
Fame Öer	70° 50′
Point Constable	70° 45′
Vardeklöft	70° 36′
Kap Hope	70° 27′
Kap Stewart	70° 25′
The west side of Jameson Land	71° 16′-70° 25′

D. The Kap Dalton-part comprises localities between 70° and 69°25′ lat. N.

	lat. N.
Kap Brewster	70° 9′
Dunholm	69° 55′
Turner Sund	69° 45′
Henry Land	69° 35′
Kap Dalton	69° 25′

E. Southern coast-part comprises the localities between 69°25′ and 66°20′ lat. N.

	lat. N.
Storbræ	68° 49′
Kap Vedel	68° 30′
Kap Irminger	68° 5′
Skærgaards Halvöen	68° 7′
Nordre-Aputitek	67° 48′
Söndre-Aputitek	67° 16′
Nualik	67° 16′
Kap Christiansen	67° 13′
Jagos Fjord	67° 6′
Langöen (Ikerasarmiut)	67° 4′
Kap Warming	67° 1′-2′
Lilleö	66° 58′
Kajarsak	66° 49′
Itivsalik	66° 47′
Kap Jörgensen	66° 45′
Nanertalik	66° 36′
Kap G. Holm	66° 36′
Ikersuak	66° 27′
Vahls Fjord	66° 22′

Fam. 1. Rosaceae.

1. Dryas octopetala L.

Lge. Consp. Fl. Grœnl. p. 2 & 234. Hartz Fanerog. p. 319 Dusén Gefässpfl. p. 12.

α. genuina.

Northern inlet-part: Fleming Inlet (K.)! Canning Ld. (H. & K.)!

Scoresby Sund: Nordvestfjord, Röde Ö, Danmarks Ö (H.)! Hurry Inlet (D.)! Liverpool Kyst (H. & K.)! Klitdalen (H. & K.)!

Kap Dalton-part: Turner Sund and Kap Dalton (K.)! Not found south of 69°25′ lat. N.

β. minor Hook.

Common between 74° and 69°, collected by all travellers.

λ. *hirsuta* Hartz.

Northern coast-part: Hold with hope (H.)!
Scoresby Sund: Jameson Land (H.)! Danmarks Ö (H.)! Nordvestfjord (H.)! Klitdalen, Hurry Inlet (H. & K.)! (stony plain.)

δ. *argentea* A. Blytt.

Northern coast-part: Sabine Ö, Bontekoe Ö, Kap Parry (D.)! Hold with hope (H.)! Jameson Land (H.)! Ispynt in Vestfjord (H.)!
Southern inlet-part: Hurry Inlet, Klitdalen (in downs) (H. & K.)!

* **integrifolia** (M. Vahl) Hartz l. c.

Northern inlet-part: Polhem Dal (H. & K)! Röhs Fjord (D.)! Franz Joseph Fjord (D.)!
Southern inlet-part: Röde Ö, Hjörnedal, Danmarks Ö (H.)!

f. *intermedia* Natth.

Only found in Scoresby Sund from Danmarks Ö, Hjörnedal (H.)!

2. **Potentilla pulchella** R. Br.

Lge. Consp. p. 4 & 234. Buchenau & Focke l. c. Hartz Fanerog. p. 320. Dusén Gefässpfl. p. 14.

f. *humilis* Lge.

Northern coast-part: Common.
Pendulum Ö (D.)! Sabine Ö (D. H. & K.)! Dr. Augusta Dal (D.)! Kap Borlase Warren (D. H. & K.)! Clavering Ö (C. & P. D.)!
Scoresby Sund: Jameson Land (H.)!
The Kap Dalton-part: Turner Sund (H. & K.)!

f. *elatior* Lge.

Jameson Land (H. & K.)! Hurry Inlet (D. H. & K.)!

3. **Potentilla maculata** Pour.

Lge. Consp. Fl. Grœnl. p. 6 & 234. Hartz Fanerog. p. 321. Dusén Gefässpfl. p. 14.

a. vulgaris Lge.

Northern coast-part: Sabine Ö (H. & K.)! Clavering Ö (A. G. N.)!
Northern inlet-part: Fleming Inlet (H. & K.)!
Southern inlet-part: Hurry Inlet (D.)! Vardekløft (H. & K.)! common in Scoresby Sund (H.)!

Kap Dalton-part: Turner Sund (H. & K.)!
Southern coast-part: common, yet not collected between 69°30′ and 67°.

f. *hirta* Lge.

Turner Sund (H. & K)! Kap Warming (K.)!

f. *debilis* Lehm.

Jameson Land (H.)!

f. *gelida* (C. A. Mey.) Hartm.

Danmarks Ö, Nordvestfjord (H.)!

4. Potentilla emarginata Pursh.

Lge. Consp. Fl. Grœnl. p. 8 & 235. Buchenau & Focke l. c. Hartz Fanerog. p. 322. Dusén Gefässpfl. p. 14. (Pot. fragiformis v. pariflora Trautv.)

Northern coast-part: Pendulum Ö (D.)! Sabine Ö (all travellers), Hvalros Ö (D.)! Kap Borlase Warren (H. & K.)! Hold with hope (H.)!
Northern inlet-part: Scott Keltic Ö, Antarctic Havn (A. G. N.)!
Scoresby Sund: Common.
Kap Dalton-part: Kap Dalton, Turner Sund (H. & K.)!

5. Potentilla nivea L.

Lge. Consp. p. 8 & 235. Buchenau & Focke l. c. Hartz Fanerog. p. 322. Dusén Gefässpfl. p. 15.

Common everywhere between 74°30′ and 69°30′, collected by all travellers.

v. *subguinata* Lge.

Northern coast-part: Hold with hope (H.)!

v. *subviridis* Lehm.

Scoresby Sund: Gaaseland (H.)!

6. Sibbaldia procumbens L.

Lge. Consp. p. 11 & 236. Hartz Fanerog. p. 322. Dusén Gefässpfl. p. 15.

Northern inlet-part: Fleming Inlet 71°40′, Pingels Dal 71°38′ (H. & K.)!
Scoresby Sund: Rather common, Gaaseland, Nordvestfjord, Danmarks Ö, Jameson Land (H.)! Hurry Inlet (D.)! Hurry Inlet Klöften (H. & K.)!
Kap Dalton-part: Kap Dalton, Turner Sund (H. & K.)!
Southern coast-part: Common on the coast south of 69°30′, noted in all localities. Kap Irminger, Skærgaards Halvöen, N.-Aputitek (A.)!

7. **Alchimilla glomerulans** Bus.

Alchimilla vulgaris L. Hartz Fanerog. p. 322. Lge. Consp. p. 11 & 237 ex parti.

The specimens collected by Hartz in Gaaseland belong all to this form of A. vulg. that more to the southward of the east-coast is very common. In no localities visited in 1899 and 1900 this considerable species was found, and only south of 66°20′ it becomes common.

Fam. 2. Halorrhagidaceae.

8. **Hippuris vulgaris** L.

Lge. Consp. Fl. Grœnl. p. 13, Rosenv. Till. p. 658. H. vulg. β maritima. Hartz Fanerog. p. 323. Dusén Gefässpfl. p. 15.

Up to 40 ctm. high, strong; in ponds in the interior.

Scoresby Sund: Danmarks Ö, Röde Ö, Renodde (H.)! Hurry Inlet (A. G. N.)!

f. *maritima* (Hellen) Hartm. non Lge.

Liverpool Kyst, Ryders Dal, Ulveodde (H. & K.)! Jameson Land near Nordostbugt (H. & K.)! 15—30 ctm. high.

The present form especially remarkable by the short leaves (air-leaves smaller than 10^{mm}, water-leaves up to 5^{mm}) and whorls, small in number (up to 8 leaves), passes smoothly into the main form without distinct limits. It is found in small pools with shallow water (under 30 ctm.) that during the summer are liable to drying up.

Fam. 3. Callitrichaceae.

9. **Callitriche verna** L. β **minima** Hoppe.

Lge. Consp. p. 14 & 238. Hartz Fanerog. p. 323.

Scoresby Sund: In lakes and pools in Danmarks Ö and Röde O.

Fam. 4. Oenotheraceae.

10. **Epilobium anagallidifolium** Lam.

Hausskn. Monograph p. 152. Rosenv. Til. p. 659. Dusén Gefässpfl. p. 16. E. alpinum. Lge. Consp. p. 14 & 238.

Scoresby Sund: In the interior of Hurry Inlet (D.)! Vardeklöft in herby slopes (H. & K)! Ulveodde (H. & K.)!

Up to 10 ctm. high, grows most often socially on humid, sandy slopes round brooklets, where the coat of snow is strong, and may here be coverforming on areas of the size of one □ fathom (4 □ M.).

11. **Chamaenerium latifolium** (L.) Spach.

Lge. Consp. Fl. Grœnl. p. 16 & 239. Hartz Fanerog. p. 323. Dusén Gefässpfl. p. 16.

On steep slopes in the table-land, often snowless (H.)!

Common in North-East Greenland between 75° and 69° 25′ (Sabine, Scoresby, C. & P., H., D., H. & K.). In Scoresby Sund as far as 2200′ above the level of the sea (H.)! In the southern coast-belt only scarce. Kap Vedel (A.)! Lilleö (K.)! Vahls Fjord (K.)!

f. *stenopetala* Hausskn. Monogr. p. 191.

Scoresby Sund: Common in Danmarks Ö (H.)!
Southern coast-part: Skærgaards Halvöen (A.)!

f. *parviflora* Hartz l. c.

Only found in Röde Ö (H.)!

Fam. 5. Empetraceae.

12. **Empetrum nigrum** L.

Lge. Consp. p. 18 & 240. Buchenau & Focke l. c. Hartz Fanerog. p. 324. Dusén Gefässpfl. p. 16.

Here and there.

Northern coast-part: Kuhns Ö (C. & P.)! Sabine Ö (H. & K.)! Mackenzie Bugt (C. & P.)! Clavering Ö (D.)!
Northern inlet-part: Scott Keltic Ö (D.)! Forsblad Fjord (D. H. & K.)! Röhs Fjord (D.)! Kap Parry, Antarctic Havn (D.)!
Scoresby Sund: Here and there, but not common (H.)! Jameson Land common (H. & K.)! Hurry Inlet common (D. H. & K.)!
Kap Dalton-part: Kap Dalton, Turner Sund rather rare (H. & K.)!

It is collected in all visited localities south of 69°30′.

It is nowhere except in Jameson Land formation or cover-forming north of 69° and seeches most often shelter against the predominant winds. It is most often hermophroditic and is in several places observed with ripe fruit.

Fam. 6. Caryophyllaceae.

13. **Silene acaulis** L.

Lge. Consp. p. 19 & 241. Buchenau & Focke l. c. Hartz Fanerog. p. 324. Dusén Gefässpfl. p. 17.

Common everywhere between 75° and 66°20′, observed by all travellers and in all localities. The tufts reach a diameter of 30—40 ctm. and a height of 7—10 ctm., but the wind-ward is often eroded or dead, so that the tuft has the form of a horse-shoe.

f. *albiflora* Lge.

Not rare in humid localities in Scoresby Sund (H.)!

14. **Viscaria alpina** (L.) Don.

Lge. Consp. p. 19 & 241. Hartz Fanerog. p. 324.

In thickets and herby slopes, snowcovered in winter, up to 15 ctm. high. Common in the interior of Scoresby Sund: Dan-

marks Ö, Gaaseland, Röde Ö, Vestfjord (H.)! but else it is not observed anywhere north of 66° 20′ lat. N.

15. **Melandrium apetalum** (L.) Fzl.

Lge. Consp. p. 19 & 241. Buchenau & Focke l. c. Hartz Fanerog. p. 324. Dusén Gefässpfl. p. 18.

In table-land.

Northern coast-part: Common, observed by all travellers.
Northern inlet-part: Kap Franklin, Bontekoe Ö, Scott Keltic Ö. Antarctic Havn.
Scoresby Sund: Not common. Jameson Land, Gaaseland (H.)! Hurry Inlet, Ryders Dal in downs, Liverpool Kyst (H. & K.)!
Southern coast-part: Kap Dalton, Turner Sund (H. & K.)!

The species has not been observed south of 69°30′.

16. **Melandrium involucratum** (Cham. & Schld.) *β* **affine** (J. Vahl) **Rohrb.**

Lge. Consp. p. 20 & 241. Buchenau & Focke l. c. Hartz Fanerog. p. 324. Dusén Gefässpfl. p. 18.

In heath and table-land.

Observed by all travellers between 75° and 69°30′ and in all localities on the coast. It appears according to Dusén l. c. less frequently in the northern inlet-part, while it is common in Scoresby Sund. It has not been collected south of 69° 30′.

17. **Melandrium triflorum** (R. Br.) Vahl.

Lge. Consp. p. 20 & 241. Buchenau & Focke l. c. Hartz Fanerog. p. 325. Dusén Gefässpfl. p. 18.

In heath and table-land. Here and there between 65° and 70°.

Northern coast-part: Common, observed by all travellers.
Northern inlet-part: Common.
Scoresby Sund: Rather common, Jameson Land, Danmarks Ö a. o. plac. (H.)! Kap Stewart (D.)! Hurry Inlet (A. G. N.) Klitdalen (H. & K.)!

The species has a more northern extension than the preceding one; its southern limit is a little more northern, to which also the

apparent disagreement of the statements of its frequency in Hartz and Dusén is proportionate.

18. **Sagina Linaei** Presl.

Lge. Consp. p. 21 & 242. Hartz Fanerog. p. 325.

Northern inlet-part: Kap Seaforth (H. & K.)!
Scoresby Sund: Jameson Land (H.)!
Southern coast-part: Skærgaards Halvöen (A.)!

19. **Sagina nivalis** (Lindbl.) Fr. ex pterte.

Lge. Consp. p. 22 & 242.

Northern coast-part: Sabine Ö, Kap Borlase Warren (H. & K.)!
Kap Dalton-part: Turner Sund (H. & K.)!
Southern coast-part: The gulf south of Storbræ, Nordre-Aputitek (A.)!

20. **Sagina caespitosa** (J. Vahl) Lge.

Lge. Consp. p. 21 & 242. Hartz Fanerog. p. 325.

Northern coast-part: Kap Borlase Warren (H. & K.)!
Scoresby Sund: Jameson Land (H.)!

21. **Alsine biflora** (L.) Wbg.

Lge. Consp. p. 23 & 243. Buchenau & Focke l. c. Hartz Fanerog. p. 325. Alsine triflora Dusén Gefässpfl. p. 19.

Rather common between 74° 30′ and 66° 20′ especially on the coast, but also in the interior it is found extended especially in the southern part.

f. *flor. lilacinis* Hartz l. c.

Northern inlet-part: Kap Seaforth, Canning Land (H. & K.)!
Scoresby Sund: Danmarks Ö, Gaaseland (H.)!

22. **Alsine stricta** (Sw.) Wbg.

Lge. Consp. p. 25 & 243. Hartz Fanerog. p. 326.

Scoresby Sund: Gaasefjord (H.)!

23. **Alsine verna** Bartl.

Lge. Consp. p. 24 & 243. Buchenau & Focke l. c. Hartz Fanerog. p. 325. Alsine rubella Wbg. Dusén Gefässpfl. p. 19.

β. rubella (Wbg.) Lge.

Northern coast-p.: Pendulum Ö (D.)! Sabine Ö (all travellers)! Hvalros Ö (D.)! Kap Borlase Warren (H. & K)! Hold with hope (H. D.)! Kap Bror Ruys (C. & P.)! Mackenzie Bugt (Gr.)!

Northern inlet-p.: Moskusoxefjord (Gr.)! Geolog Fjord (D.)! Franz Joseph Fjord (C. & P.)! Kjerulf Fjord (D.)! Forsblad Fjord (A. G. N.)! Kap Seaforth (H. & K.)! Canning Land at Kap Fletcher (H. & K.)!

Scoresby Sund: Jameson Land (H.)! Kap Brewster (H. & K)! Hurry Inlet (H. & K. D.)! Kap Stewart (D.)!

Southern coast-p.: Kap Dalton (H. & K.)!

γ. hirta (Wormsk.) Lge.

Kap Borlase Warren (H. & K.)!

Scoresby Sund: Common in dry thickets (H.)! Hurry Inlet, Liverpool Kyst (H. & K.)!

Kap Dalton-p.: Turner Sund (H. & K.)!

δ. propinqua (Richards) Lge.

Northern inlet-p.: Kap Brown (H. & K.)!

Scoresby Sund: In the interior of Scoresby Sund: Röde Ö, Kobberpynt (H.)!

Kap Dalton-p.: Turner Sund (H. & K.)!

24. **Halianthus peploides** (L.) Fr. var. **diffusa** Hornem.

Lge. Consp. p. 26 & 243. Buchenau & Focke l. c. Hartz Fanerog. p. 326. Dusén Gefässpfl. p. 20.

Northern coast-p.: Sabine Ö (H. & K.)! Lille Pendulum Ö (D.)! Clavering Ö (C. & P. Akerbl.)! Kap Borlase Warren (C. & P.)!

Northern inlet-p.: Franz Joseph Fjord (A. G. N.)! Kjerulf Fjord (D.)! Forsblad Fjord (D. H. & K.)! Canning Land (H. & K.)!

Scoresby Sund: Common in the interior inlets west of Hurry Inlet (D.)!

25. **Arenaria ciliata** L. β **humifusa** (Wbg.).

Lge. Consp. p. 27 & 243. Buchenau & Focke l. c. Hartz Fanerog. p. 326. Dusén Gefässpfl. p. 20.

Northern coast-p.: Common, noted by all travellers, especially in Sabine Ö a very predominant character plant in the lower parts.
Northern inlet-p.: Franz Joseph Fjord (C. & P.)! Sophia Stræde (A. G. N.)! Fleming Inlet, Kap Seaforth, Canning Land (H. & K.)!
Scoresby Sund: Jameson Land, Gaaseland (H.)! Hurry Inlet (D.)! Klitdalen, Vardeklöft, Pt. Constable, Liverpool Kyst (H. & K.)!
Kap Dalton-p.: Turner Sund, common in the lowland, Kap Dalton (H. & K.)!

The species has not been found south of 69° 30′ lat. N.

26. **Stellaria humifusa** Rottb.

Lge. Consp. p. 28 & 244. Buchenau & Focke l. c. Hartz Fanerog. p. 326. Dusén Gefässpfl. p. 20.

Northern coast-p.: Common, Sabine Ö (all travellers)! Kap Borlase Warren (D. H. & K.)!
Northern inlet-p. Bontekoe Ö, Scott Keltic Ö, Forsblad Fjord (D.)! Kap Seaforth (H. & K.)!
Scoresby Sund: Danmarks Ö, Jameson Land (H.)! Hurry Inlet common (D. H. & K.)!
Kap Dalton-p.: Turner Sund, Dunholm (H. & K.)!

Not found between 69° 30′ and 66° 20′.

The species lives in flats of clay and sand near the beach together with Glyceria maritima f. vilfoidea and Carex glareosa and seems to prefer the outer coast in contradistinction from what is the case south of 66° lat. N.

27. **Stellaria longipes** Goldie.

Lge. Consp. p. 29 & 244. Buchenau & Focke l. c. Hartz Fanerog. p. 326. Dusén Gefässpfl. p. 21.

Common everywhere between 74° 30′ and 69° 30′ and noted by all travellers, not found on the coast more to the south.

28. **Cerastium trigynum** Vill.

Lge. Consp. p. 30 & 244. Hartz Fanerog. p. 326.

Northern inlet-p.: Fleming Inlet 71° 40′ in humid places (H. & K.)!
Scoresby Sund: Common, especially east of Danmarks Ö (H.)!
Hurry Inlet, Jameson Land, common (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: Kap Vedel, Kap Irminger, Skærgaards Halvöen, N.-Aputitek (A.)!

Commonly extended south of 67° 20′.

The species is stated among the plants found by Sabine, but has not been refound by any later traveller in the places visited by S. (Pendulum Öer?). This uncommonly northern locality must therefore be omitted as uncertain, as it is not precisely stated where the specimens were collected.

It likes humid places: pools, the banks of brooklets, herby slopes and the borders of perennial snow-drifts, but is also found in the table-land, in places where there is water in spring. It thrives on the southern coast especially in and round Eskimau ruins where it forms a thick cover.

29. **Cerastium alpinum** L.

Lge. Consp. p. 31. Buchenau & Focke l. c. Hartz Fanerog. p. 327 ex parte. Dusén Gefässpfl. p. 20.

α. legitimum Lindbl.

Not rare and found in numerous localities between 74° 30′ and 69° 30′.

β. lannatum Lindbl.

Commonly extended everywhere in East Greenland in all forms of vegetation and as well on the coast as in the interior.

γ. procerum Lge.

Northern inlet-p.: Moskusoxefjord (Gr.)!
Scoresby Sund: Gaaseland, Danmarks Ö (H.)!

30. **Cerastium Edmonstonii** (Watson) Murb. & Ostenf. var. **caespitosum** (Malmgr.) Dusén Gefässpfll. p. 22.

Cerastium arcticum Lge. p. ex part. Cerastium alpinum L. v. caespitosum Malmgren. Hartz Fanerog. 327. Cerast. latifolium Hooker in Scoresby: Journal p. 413.

Northern coast-p. Sabine Ö! Lille Pendulum Ö! Clavering Ö (D.)! Hold with hope (H.)!
Northern inlet-p.: Fleming Inlet, Kap Seaforth (H. & K.)!
Scoresby Sund: Hurry Inlet (D.)!
Kap Dalton-p.: Turner Sund (H. & K.)!

I have within this species classed only specimens undoubtedly corresponding with Malmgren's C. alp. v. caespit., as it appears to me that the limits drawn by Murbeck round C. Edmonstonii are so wide that it enters into the domain of C. alpinum. Malmgren's var. (C. arcticum) is on the other hand a form very characteristic and easily recognizable in East Greenland, and it cannot be confounded with C. alp., at any rate not when it is seen in nature. Its appearance in flats of sand and clay distinguishes this plant from the above-named species that lives on rocks.

Fam. 7. Cruciferae.

31. **Lesquerellia arctica** (Richards) Watson.

Hartz Fanerog. p. 327. Dusén Gefässpfl. p. 22. Vesicaria arctica R. Br. Lge. Consp. p. 34 & 246.

Northern coast-p.: Dronning Augusta Dal (A. G. N.)!
Northern inlet-p.: Franz Joseph Fjord (C. & P.)! Mackenzie Bugt (Gr. D.)! Ruth Ö (A. G. N.)! Sophia Stræde (A. G. N.)! Röhs Fjord (D.)! Forsblad Fjord (D. H. & K.)!
Scoresby Sund: Jameson Land, Röde Ö, Vestfjord and several places, common (H.)! Hurry Inlet (D.)! Klitdalen in flats of sand and clay, and in plains of stone, Fame Öer (H. & K.)!

During the flowering the numerous flower-stalks are ascending, but then they straighten themselves fitting tightly to the field until the fruit is ripe. Then they again bend upwards rising the siliques 4—6 ctm. above the ground.

32. **Cochlearia officinalis** L.

Gelert i G. Anderson & H. Hesselman Spetsbergens Kärlväxtflora, Bihang till K. Sv. Vetensk. Akad. Handl. Bd. 26. Afd. III. Nr. 1. p. 34.

The following forms of this variable species we have seen from the territory.

β. groenlandica Gelert.

Dusén Gefässpfl. p. 23. C. Grœnlandica L. Lge. Consp. p. 35 ex parte. C. fenestrata R. Br. Hartz Fanerog. 327 ex parte. Buchenau & Focke l. c. Coclearia anglica Scoresby Journal.

Northern inlet-p.: Kap Bennet (D.)! Kap Seaforth.
Kap Dalton-p.: Kap Dalton, Dunholm (H. & K.)!

f. *minor* (Lge.) Gelert.

Northern coast-p.: Hvalros Ö, Lille Pendulum Ö (C. & P., H. & K.)! Kap Borlase Warren (H. & K.)! Hold with hope (H.)!
Scoresby Sund: Jameson Land, Danmarks Ö (H.)!
Kap Dalton-p.: Turner Sund (H. & K.)!
Southern coast-p.: Kap G. Holm (K.)!

β. oblongifolia (D. C.) Gelert.

C. fenestrata (R. Br.). Hartz l. c. ex parte.

Northern coast-p.: Lille Pendulum Ö (D.)! Hvalros Ö (Gr.)!
Northern inlet-p.: Murrays Ö (D.)!
Scoresby Sund: Hurry Inlet (D.)! Jameson Land in Moskær (H.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!

No one of the forms is frequent, they keep mostly near the coast of the sea and are found there almost exclusively in manured spots, ruins, fowling cliffs and islets, and gull hillocks; its scarce appearance is certainly due to the spread population of Eskimaux disappeared long ago and the insignificant birdlife.

33. **Draba alpina** L.

Lge. Consp. p. 37 & 247. Buchenau & Focke l. c. Hartz Fanerog. p. 328. Dusén Gefässpfl. p. 24. Dr. leptotala Dusén l. c.

Commonly extended between 69° 20′ and 74° 30′. The main form is very easily recognizable on account of the strongly yellow flowers, dark stalks and very thick and coarse hairy coat in stars. The hairiness of the capsule is very variable also in the same individual, so that it is scarcely possible to base a systematical distinction on this circumstance. The forms mentioned by Dusén with white petals belong to Draba Fladnizensis.

β. glacialis (Kjellm.) Gelert.

Northern coast-p.: Sabine Ö (H. & K.)! Kap Borlase Warren (H. & K)!
Scoresby Sund: Danmarks Ö, Jameson Land, Gaaseland (H.)!

γ. oblongata (R. Br.) Gel.

Dr. leptopetala Dusén (non Th. Tr.) l. c.

Hold with hope (A. G. N.)!

34. **Draba glacialis** Adams.

Gelert Notes on arctic Plants Bot. Tidsskr. Bd. 21. 3. H. p. 294. Dr. Martinsiana I Gay Dusén Gefässpfl. p. 26.

β. aspera (Adams) Gelert.

Northern coast-p.: Lille Pendulum Ö (D.)! Sabine Ö (D.)!

γ. stenopetala Trautv.

Northern coast-p.: Lille Pendulum Ö (D.)!

35. **Draba crassifolia** Grah.

Lge. Consp. p. 38 & 247. Hartz Fanerog. p. 328. Dusén Gefässpfl. p. 25.

Northern coast-p.: Hold with hope (H.)!
Scoresby Sund: Jameson Land, Gaaseland, Danmarks Ö, Nordvestfjord (H.)! Kap Stewart (D.)!
Kap Dalton-p.: Kap Dalton (H. & K)!

Likes humid localities, and seeks shelter between stones or higher vegetation in herby or grassy slopes or river-beds.

36. **Draba aurea** M. Vahl.

Lge. Consp. p. 39 & 247. Hartz Fanerog. p. 328.

Scoresby Sund: Common in the interior. Danmarks Ö, Gaaseland, Röde Ö, Nordvestfjord o. fl. St. (H.)!
Southern coast-p.: Kap Warming (K.)!

This considerable species shuns the outer coast preferring dry, gravelly localities exposed to the south high on the mountains in the interior of the country; it is therefore possibly far more extended than it appears from the above-named few localities, but has hitherto avoided the investigations.

37. **Draba repens** M. v. Bieb.

Dusén Gefässpfl. p. 23.

Scoresby Sund: Hurry Inlet (A. G. N)! Ryders Dal, Point Constable (H. & K.)!

Grows socially and colours large spots beautifully yellow, prefers humid table-land, the banks of half dried pools and sandy ground. It excludes almost all other plants from its habitat, but still it forms no complete cover, the ascending stalks being leafless on the whole of the lower part.

38. **Draba nivalis** Liljeb.

Lge. Consp. p. 39 & 248. Buchenau & Focke l. c. Hartz Fanerog. p. 328. Dusén Gefässpfl. p. 26. Draba arctica Dusén l. c. ex parte.

Northern coast-p.: Sabine Ö (all travellers). Kap Borlase Warren (H. & K.)! Mackenzie Bugt (Gr.)!
Northern inlet-p.: Canning Land (H. & K.)!
Scoresby Sund: Common (H.)! Hurry Inlet (D.)!
Kap Dalton-p.: Kap Dalton, Turner Sund (H. & K.)!
Southern coast-p.: Lilleö, Vahls Fjord (K.)!

39. **Draba Fladnizensis** Wulf.

Gelert Notes on arctic plants. Bot. Tidsskr. 21. Bd. 3. H. p. 302. Dr. Wahlenbergii Hartm. Lge. Consp. Fl. Grœnl. p. 40 & 248. Hartz Fanerog. p. 328. Dusén Gefässpfl. p. 25. Buchenau & Focke l. c. Dr. muricella B. & F. l. c. D. rupestris f. parva B. & F. D. altaica (Led.) Hartz l. c.

This very variable, but yet rather easily recognizable species appears in many forms, size and hairiness varying very considerably; it possibly comprises several species, but we have not been able to acknowledge this with the material in hand where the different forms pass evenly into each other. I class within this all white-flowered, ciliate short-ribbed individuals. It is rather commonly extended in all formations over the coast, yet decreasing distinctly in number and size towards the North where it is displaced by D. alpina from which certain forms cannot be distinguished when sterile or having done flowering. In the southern part of the coast-region it is very common also in the interior.

Northern coast-p.: Lille Pendulum Ö (D.)! Sabine Ö (H. & K.)! Clavering Ö (C. & P. D.)! Kap Borlase Warren (H. & K.)! Hold with hope (H.)!

Northern inlet-p.: Mackenzie Bugt (Gr.)! Kap Seaforth (H. & K.)!

Scoresby Sund: Gaaseland, Danmarks Ö, Jameson Land a. o. places (H.)! Hurry Inlet (H. & K.)!

Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!

Southern coast-p.: N.-Aputitek, Storbræ (A.)! Vahls Fjord (K.)!

40. **Draba hirta** L.

Lge. Consp. Fl. Grœnl. p. 42. Buchenau & Focke l. c. Hartz Fanerog. p. 329. Dusén Gefässpfl. p. 25. D. rupestris C. & P. D. D. corymbosa R. Br. Hartz l. c.

Rather common everywhere in Northeast Greenland and noted by all travellers. Varies very much, but the forms cannot be kept distinct.

41. **Draba arctica** J. Vahl.

Lge. Consp. Fl. Grœnl. p. 43. Buchenau & Focke l. c. Hartz Fanerog. p. 329. Dusén Gefässpfl. p. 26.

Commonly extended between 69° 30′ and 75° lat. N., observed by all travellers; between 66° 20′ and 69° it has not been observed.

42. **Braya purpurascens** (R. Br.) Bunge.
f. **siliculis glabris** Hartz.

Braya glabella Lge. Consp. p. 46 & 250. Hartz Fanerog. p. 329. Dusén Gefässpfl. p. 26. Platypetalum purpurascens R. Br.

Northern coast-p.: Sabine Ö, Kap Borlase Warren (H. & K.)! Dronning Augusta Dal (A. G. N.)! Clavering Ö (D.)!
Northern inlet-p.: Franz Joseph Fjord (D.)! Moskusoxefjord (Gr.)! Ruth Ö (A. G. N.)! Kap Seaforth (H. & K.)!
Scoresby Sund: Jameson Land (H.)! Fame Öer (A. G. N. H. & K.)! The downs in Ryders Dal (H. & K.)!

In sandy or clayey-sandy flats. Bears rather well sand-drift.

43. **Braya alpina** Sternb. & Hoppe.

Hartz Fanerog. p. 329. Dusén Gefässpfl. p. 27. Braya glabella Richards non Lge. & Hartz. Arabis petræea Buchenau & Focke l. c.

Northern inlet-p.: Franz Joseph Fjord (B. & F. D)! Ruth Ö (A. G. N.)!
Scoresby Sund: Fladepynt in Vestfjord, Kingua Gaasefjord (H.)! Hurry Inlet, Ryders Dal in stony plains and in downs (H. & K.)!

In the interior of the country in sandy flats and in downs. Sets ripe fruit in abundance.

44. **Eutrema Edwardsii** R. Br.

Dusén Gefässpfl. p. 27.

Northern coast-p.: Mackenzie Bugt (Gr.)!

45. **Cardamine bellidifolia** L.

Lge. Consp. Fl. Grœnl. p. 47 & 251. Buchenau & Focke l. c. Hartz Fanerog. p. 329. Dusén Gefässpfl. p. 27.

Northern coast-p.: Sabine Ö (all travellers)! Lille Pendulum Ö (C & P., A. G. N.)! Hvalros Ö (G.)! Kap Borlase Warren (D.)! Clavering Ö (D.)! Hold with hope (H., D.)!
Northern inlet-p.: Scott Keltic Ö (D.)! Kap Greg (H. & K.)!
Scoresby Sund: Common. Kap Tobin (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: Kap Vedel, N.-Aputitek (A)! Jagos Fjord, Kap Warming, Lilleö, Itivsalik (K.)!

var. *laxa* Lge.

Kap Dalton (H. & K.)!

The main species is found spread in heath, table-land and pools and is commonly extended; it likes humid cracks in the rocks and is certainly often snowless in winter.

46. **Cardamine pratensis** L.

Lge. Consp. p. 48 & 251. Hartz Fanerog. p. 329. Dusén Gefässpfl. p. 27.

Northern coast-p.: Mackenzie Bugt (G.)! Kap Seaforth (H. & K.)!
Scoresby Sund: Jameson Land, Danmarks Ö (H.)! Nordvestbugt, Liverpool Kyst, Hurry Inlet (H. & K.)!

Is as a rule sterile and propagates only by the deciduous leaflets. This form is strongly hydrophile and is most often found submerse in smaller puddles and pools; but it appears also in more dry, sandy localities with flower, but without any seed in the thin stunted siliques. The species sets certainly never in these regions seeds that have the power of germination.

47. **Arabis alpina** L.

Lge. Consp. p. 48 & 251. Hartz Fanerog. p. 330. Dusén Gefässpfl. p. 28.

Northern inlet-p.: Fleming Inlet (H. & K.)! 71° 40′ lat. N.
Scoresby Sund: Common (H.)! Kap Stewart (D.)! Hurry Inlet (A. G. N.)! Vardeklöft, Liverpool Kyst and several places (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: Kap Irminger (A.)! Kap Warming (K.)!

The species appears in several forms, partly as low, 3—5 ctm. high peduncles and 0·5—1 ctm. long leaves in 1—2 ctm. broad rosettes (f. *minor* Lange), partly in more or less hairy forms however connected by transitions (Hartz f. *glabrata*). A specimen of (Lange f. *ruderalis*) has been observed at Kap Stewart.

48. **Arabis Holboellii** Hornem.

Hartz Fanerog. p. 330.

Scoresby Sund: Common in the interior, Gaaseland, Röde Ö, Vestfjord (H.)!

Kap Dalton-p.: Turner Sund (H. & K.)!

In gravelly and stony slopes and in dry thickets, is not found in the coast region.

Fam. 8. Papaveraceae.

49. **Rapaver radicatum** Rottb.

Hartz Fanerog. p. 330. Dusén Gefässpfl. p. 41. **P. nudicaule.** Lge. Consp. p. 52 & 253. Buchenau & Focke l. c.

Common everywhere between 75° and 69° 30′. It appears especially in the northern coast part (Sabine Ö) in incredible numbers and in unusually strong tufts; on a single tuft Hartz counted 38 full-blown flowers and 34 large buds. On the top of Harefjæld and in humid ground at Germania Havn the white-flowered form was very frequent. In the southern part (Scoresby Sund and the Kap Dalton part) the white-flowered form is more rare. South of 69° 30′ the species is very rare and only found in few places, Kap Vedel, Storbræ (A.)! Langö, Jagos Fjord (K.)!

f. *pygmæa* Hartz.

5—10 ctm. high.

Northern coast-p.: Hold with hope (H.)!
Scoresby Sund: Danmarks Ö (H.)!

f. *glabriuscula* Hartz.

Foliis læte viridibus, parce hirsutis, ad **P. nudicaule** L. (**P. croceum** Ledeb.) accedens.

Scoresby Sund: Jameson Land (H)!

Fam. 9. Ranunculaceae.

50. **Thalictrum alpinum** L.

Lge. Consp. p. 53 & 253 (Hartz Fanerog. p. 231. Dusén Gefässpfl. p. 29.

Northern inlet-p.: Fleming Inlet 71° 40′ (H. & K.)!
Scoresby Sund: Gaaseland, Danmarks Ö, Kingua Gaasefjord, not

common (H.)! Hurry Inlet (D. H. & K.)! Kap Dalton (H. & K.)! Not found between 69° 30′ and 66° 20′.

In herby and grassy slopes in humid sheltered places, snow-covered in winter.

51. **Batrachium paucistamineum** (Tausch.) var. **eradicata** (Læst.).

Gel. Bot. Tidsskr. Bd. 19, p. 28.

Scoresby Sund: Danmarks Ö (H.)! Nordostbugt (H. & K.)! Hurry Inlet (Arfvidson)! The specimens are all together sterile.

In pools and small, shallow puddles, very rare.

52. **Ranunculus glacialis** L.

Lge. Consp. p. 54 & 254. Buchenau & Focke l. c. Hartz Fanerog. p. 331. Dusén Gefässpfl. p. 29.

Common on the coast in the whole examined region and noted by all travellers, but not observed in the interior of the inlets. Is wanting in Scoresby Sund (H.)! The flowers vary very much in colour, partly according to their age (from purple to almost white). Sets seeds in abundance.

53. **Ranunculus pygmaeus** Wbg.

Lge. Consp. p. 55 & 254. Buchenau & Focke l. c. Hartz Fanerog. p. 331. Dusén Gefässpfl. p. 30.

Northern coast-p.: Lille Pendulum Ö (C. & P.)! Sabine Ö (H. & K.)! Hold with hope (H.)!
Northern inlet-p.: Jackson Ö (C. & P.)! Mackenzie Bugt (Gr.)! Scott Keltic Ö (A. G. N.)! Kap Seaforth, Fleming Inlet (H. & K.)!
Scoresby Sund: Common (H.)!
Kap Dalton-p.: Kap Brewster, Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: Common everywhere (A., K.)!

var. *Langeana* Nath.

Northern inlet-p.: Fleming Inlet (H. & K.)!
Scoresby Sund: Gaaseland, Danmarks Ö (H.)! Hurry Inlet (H. & K.)! Kap Dalton (H. & K.)!

As well the main species as var., among which transitions are found, grow in humid places and are common on the whole of the coast, flowers and sets seeds in abundance.

54. **Ranunculus hyperboreus** Rottb.

Lge. Consp. p. 55 & 254. Hartz Fanerog. p. 331. Dusén Gefässpfl. p. 30.

Northern coast-p.: Hvalros Ö (D.)! Sabine Ö (A. G. N. H. & K.)! Kap Borlase Warren (D. H. & K.)!
Northern inlet-p.: Antarctic Havn (A. G. N.)! Kap Seaforth (H. & K.)!
Scoresby Sund: Kap Stewart, Danmarks Ö, Kingua Gaasefjord (H.)! Hurry Inlet (D. H. & K.)!
Kap Dalton-p.: Kap Dalton (H. & K.)!

In shallow ponds and pools, most often sterile. Rather rare.

55. **Ranunculus nivalis** L.

Lge. Consp. p. 56 & 254. Buchenau & Focke l. c. Hartz Fanerog. p. 331. Dusén Gefässpfl. p. 30.

Northern coast-p.: Lille Pendulum Ö (C. & P. A. G. N.)! Sabine Ö, Kap Borlase Warren (H. & K.)! Hold with hope (H.)!
Northern inlet-p.: Mackenzie Bugt (Gr.)! Kap Seaforth (H. & K.)! Fleming Inlet (H. & K.)!
Scoresby Sund: Jameson Land, Danmarks Ö (H.)! Hurry Inlet (H. & K.)!
Kap Dalton-p.: Kap Brewster, Kap Dalton (H. & K.)!

56. **Ranunculus altaicus** Laxm.

Lge. Consp. p. 56 & 254. Buchenau & Focke l. c. Hartz Fanerog. p. 332. Dusén Gefässpfl. p. 30.

Northern coast-p.: Sabine Ö (all travellers)! Lille Pendulum Ö (D.)! Kap Borlase Warren (H. & K. D)! Hold with hope (D.)! Clavering Ö (D.)! Jackson Ö, Kap Bror Ruys (C. & P.)!
Northern inlet-p.: Bontekoe Ö, Murrays Ö (D.)! Fleming Inlet, Kap Seaforth (H. & K.)!
Scoresby Sund: Jameson Land, Gaaseland, Danmarks Ö (H.)! Kap Stewart (D.)! Hurry Inlet (H. & K.)!

57. **Ranunculus arcticus** R. Br.

Freyn in G. Anderson och H. Hesselman Bidrag till Spetsbergens och Beeren Eilands Karlväxtflora, Bihang t. Kgl. Sv. Vet. Acad. Handl. Bd. 26. Afd. III No. 1 p. 49. Dusén Gefässpfl. p. 31. R. affinis R. Br. Hartz Fanerog. p. 332.

Northern coast-p.: Sabine Ö (H. & K.)! Lille Pendulum Ö, Clavering Ö (D.)!
Northern inlet-p.: Franz Joseph Fjord (C. & P.)!
Scoresby Sund: Gaaseland (H.)!
Kap Dalton-p.: Kap Dalton (H. & K.)!

Var. **Willanderi** (Natt.) Freyn.

Kap Dalton (H. & K.)!

Fam. 10. Saxifragaceae.

58. **Saxifraga hieracifolia** Waldst. & Kit.

Lge. Consp. p. 59. Buchenau & Focke l. c. Hartz Fanerog. p. 332. Dusén Gefässpfl. p. 31.

Northern coast-p.: Kap Bror Ruys (C. & P.)!
Northern inlet-p.: Scott Keltic Ö, Forsblad Fjord (D.)! Fleming Inlet (H. & K.)!
Scoresby Sund: Jameson Land (H.)! At Nordostbugt, Hurry Inlet Klöften and several places on Liverpool Kyst (H. & K.)! Kap Brewster (H. & K.)!

In boggy pools and humid heath, not common in any of the examined localities except Jameson Land.

59. **Saxifraga nivalis** L.

Lge. Consp. Fl. Grœnl. p. 59. Buchenau & Focke l. c. Hartz Fanerog. p. 332. Dusén Gefässpfl. p. 31.

Common everywhere between 75° and 67° in all formations.

var. *tenuior* Wbg.

Has also been observed in several places, but keeps most to the coast.

60. **Saxifraga stellaris** L. β **comosa** Poir.

Lge. Consp. Fl. Grl. p. 60. Hartz Fanerog. p. 332. Dusén Gefässpfl. p. 32.

Northern coast-p.: Sabine Ö (Sabine, H. & K.), Kap Borlase Warren (H. & K.)! Hold with hope (H.)! Lille Pendulum Ö (D.)!
Northern inlet-p.: Kap Greg (H. & K.)!
Scoresby Sund: Common.
Kap Dalton-p.: Common.

The main species has not been observed north of 67° lat. N., var. not south of 69° 25′ lat. N.

61. **Saxifraga cernua** L.

Lge. Consp. Fl. Grl. p. 61 & 256. Hartz Fanerog. p. 333. Dusén Gefässpfl. p. 32.

Commonly extended everywhere in pools, table-land, herby slopes, grassy slopes and heath. Snow-covered in winter.

var. *ramosa* Gmel.

Northern coast-p.: Hold with hope (H.)!
Scoresby Sund: Danmarks Ö (H.)! Kap Stewart, Kap Dalton (H. & K.)!

Is found in manured places as Greenland ruins, at places of residence and house-walls and is here often very robust, glandular-hairy and sticky.

62. **Saxifraga rivularis** L.

Lge. Consp. Fl. Grl. p. 61 & 256. Hartz Fanerog. p. 333. Dusén Gefässpfl. p. 33.

Commonly extended over the whole of the coast, but appears somewhat more rarely in the interior of the country, likes humid places as pools, cracks in the rocks and herby slopes.

β. *purpurascens* Lge. l. c.

Northern coast-p.: Hold with hope (H.)!
Scoresby Sund: Kap Brewster (H. & K.)!
Southern coast-p.: Turner Sund (H. & K.)!

γ. var. *hyperborea* (R. Br.) Engl. Lge. l. c.

Northern coast-p.: Sabine Ö (H. & K.)! Mackenzie Bugt (Gr.)
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!

63. **Saxifraga decipiens** Ehrh.

Lge. Consp. Fl. Grl. p. 62 & 257. Hartz Fanerog. p. 333. Saxifraga cæspitosa L. Dusén Gefässpfl. p. 33.

The species is found in the following forms:

α. *caespitosa* (L.) Engl.

Commonly extended everywhere between 75° and 67°, likes humid localities with shelter.

β. *uniflora* (R. Br.) Lge.

Northern coast-p.: Kap Borlase Warren (H. & K.)! Hold with hope (H.)!
Scoresby Sund: Gaaseland (H.)! Jameson Land (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: Kap Vedel, Storbræ, Skærgaards Halvöen (A.)!

γ. *Sternbergii* (Willd.) Engl.

Kap Brewster (H. & K.)!

δ. *cryptopetala* Berlin. Kärlväxter insamlade under den svenska Expeditionen till Grönland 1883, Öfversigt af Kgl. Vet. Ak. Förh.

Northern inlet-p.: Kap Greg (H. & K.)!

64. **Saxifraga tricuspidata** Rottb.

Lge. Consp. Fl. Grl. p. 63.

Scoresby Sund: Hurry Inlet (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!

The specimens are about 10 ctm. high, strong and have a few flowers; fruit has not been observed, but on the other hand numerous fruit stalks from previous years. The species has not before been observed in East Greenland, and we have only found it very scarcely on rocks with good shelter in the 3 above-named localities between 70° 50′ and 69° 25′ lat N. In West Greenland it is common north of 64° lat. N. and has besides a western extension over the

American Archipelago; it must certainly have immigrated to the East coast by the way north of the country, as it is completely wanting in lower latitudes.

65. **Saxifraga hirculus** L.

Lge. Consp. Fl. Grl. p. 64. Hartz Fanerog. p. 233. Dusén Gefässpfl. p. 34.

Northern coast-p.: Sabine Ö, Pendulum Ö, Clavering Ö, common (all travellers)! Kap Borlase Warren (H. & K.)! Mackenzie Bugt (C. & P. Gr.)! Dronning Augusta Dal (A. G. N.)!

The species is very common in the coast regions between 75° and 73° lat. N., but else it is not known from Greenland, it flowers abundantly, the tufts are as a rule only low (about 5 ctm.) and very thick; but also higher and more lonely individuals are found in favourable localities. It is scarcely possible to insist on any limitation between the main species and Engler's var. alpina, wherefore we put down the plant under the former.

66. **Saxifraga aizoides** L.

Lge. Consp. Fl. Grl. p. 64 & 257. Hartz Fanerog. p. 333. Dusén Gefässpfl. p. 34.

Northern inlet-p.: Franz Joseph Fjord (C. & P.)! Kjerulf Fjord (D.)! Antarctic Sund (A. G. N.)! Ruth Ö (D.)! Scott Keltic Ö, Sophia Stræde (A. G. N.)! Röhs Fjord (D.)!

Scoresby Sund: Hurry Inlet (D.)! Ulveodde (H. & K.)! Röde Ö, Ispynt (H.)! Kap Seaforth (H. & K.)!

Is found in humid ground between moss in pools or in wet rocky slopes; it is not common, but is nearly always found growing socially over a greater area.

67. **Saxifraga flagellaris** Willd. var. **setigera** (Pursh) Engl.

Lge. Consp. Fl. Grl. p. 65. Hartz Fanerog. p. 333. Dusén Gefässpfl. p. 34.

Northern coast-p.: Sabine Ö, Pendulum Ö, Kap Borlase Warren (all travellers), Hold with hope (H.)! Mackenzie Bugt (Gr.)! Bontekoe Ö (D.)!

Commonly extended in humid, clayey plains and slopes (table-land between 75° and 73° 10′ lat. N., but not observed more to the south). The individuals stand lonely, with the space of 1—2 foot between them and reach a height of 3—7 ctm., having 5—12 ctm. long off-shoots. This species appears especially in Sabine Ö in exceedingly great numbers and is a characterplant for the lower table-land where it colours large areas with its lively yellow flowers and blood-red stalks.

68. **Saxifraga aizoon** L. f. **brevifolia** Engl.

Lge. Consp. Fl. Grl. p. 65 & 257. Hartz Fanerog. p. 334.

In the interior of Scoresby Sund up to a height of 1000′ above the level of the sea. Nordvestfjord, Gaaseland, Teltplads at Röde Ö (H.)! The species was not found in any of the localities visited in 1900 and has not been observed in the southern coast region north of 67° lat N.

69. **Saxifraga oppositifolia** L.

Lge. Consp. Fl. Grl. p. 66. Hartz Fanerog. p. 334. Dusén Gefässpfl. p. 34.

Commonly extended everywhere between 77° and 67° lat. N. As well f. reptans as f. pulvinata (G. Andersen and H. Hesselman) appear and are nearly as numerous as the greater loosely tufted individuals that correspond with the main species in lower latitudes. It is found in all formations and localities, but is nowhere formation forming.

β. Nathorstii Dusén l. c.

Northern coast-p.: Mackenzie Bugt (K. A. Gr.)! Kap Franklin (K. A. Gr.)!

Northern inlet-p.: Sophia Stræde, Åkerblom Ö, Berzelius Bjerg, Ruth Ö, Dusén Fjord (A. G. N.)! Kap Seaforth (H. & K.)!

We found this remarkable form in great numbers between S. oppositifolia and S. aizoides in a low horizontal sanded flat with rather humid ground.

Fam. 11. Crassulaceae.

70. **Sedum Rhodiola** D. C.

Lge. Consp. Fl. Grl. p. 66. Hartz Fanerog. p. 334. Dusén Gefässpfl. p. 38.

Northern coast-p.: Clavering Ö (C. & P. D.)!
Northern inlet-p.: Scott Keltic Ö, Röhs Fjord, Forsblad Fjord, Murrays Ö, Holloway bay (D.)! Kap Greg (H. & K.)!
Scoresby Sund: Common (H.)!
Kap Dalton-p.: Kap Dalton, Turner Sund.
Southern coast-p.: The gulf s. o. Storbræ, Skærgaards Halvöen (A.)! Nualik, Itivsalik (K.)!

Fam. 12. Plumbaginaceae.

71. **Armeria vulgaris** Willd. var. **sibirica** (Turcz) Rosenv.

Rosenvinge, Andet Tillæg til Grl. Fanerog. p. 683. Hartz Fanerog. p. 334. Dusén Gefässpfl. p. 38. Armeria sibirica Turcz. Lge. Consp. Fl. Grl. p. 70.

Northern coast-p.: Sabine Ö (all travellers)! Dronning Augusta Dal (D.)! Kap Borlase Warren (H. & K.)!
Northern inlet-p.: Forsblad Fjord (D. H. & K.)! Scott Keltic Ö (D.)! Antarctic Havn, Mackenzie Bugt (K. A. Gr.)! Moskusoxefjord (Gr.)!
Scoresby Sund: Hurry Inlet (D. H. & K.)! Liverpool Kyst, Fame Öer (H. & K.)! Kap Stewart (Ryder)!

Appears in sandy stretches near the beach, but is in Ryders Dal also found far up in the country growing luxuriantly in small downs and stony plains.

Fam. 13. Lentibulariaceae.

72. **Pinguicula vulgaris** L.

Hartz Fanerog. p. 384.

Only found in Scoresby Sund in Röde Ö by Hartz in pools, at brooks among moss. On the coast more to the south it is not found before 66° 20′ lat. N.

Fam. 14. Scrophulariaceae.

73. **Veronica alpina** L.

Lge. Consp. Fl. Grl. p. 73. Hartz Fanerog. p. 335.

Northern inlet-p.: Fleming Inlet (H. & K.)! 71° 40′.
Scoresby Sund: Jameson Land, Gaaseland, Danmarks Ö (H.)! Hurry Inlet in the cleft (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: Skærgaards Halvöen (A.)! Kap Warming (K.)!

Rare, in herby slopes in well sheltered places where the snow-cover is high in winter, and where there is during the summer an even luxuriant humidity.

74. **Veronica saxatilis** L.

Hartz Fanerog. p. 335.

Scoresby Sund: Gaaseland. In herby slopes. Snow-covered in winter (H.)!
Kap Dalton-p.: Turner Sund. In herby slopes (H. & K.)!
Southern coast-p.: Kap Warming (K.)!

In particularly well sheltered luxuriant, humid, herby slopes with high snow-cover in winter. Very rare. Most northern finding place 70° 15′ lat. N.

75. **Pedicularis lapponica** L.

Hartz Fanerog. p. 335. Dusén Gefässpfl. p. 39.

Northern inlet-p.: Kjerulf Fjord, Röhs Fjord (D.)! Forsblad Fjord (A. G. N. H. & K.)!
Scoresby Sund: Common.
Kap Dalton-p.: Kap Dalton.

The species has not been found south of 69° 25′ lat. N. and not north of 73° 10′ lat. N., while it has been observed on the west coast between 78° and 60°. This difference of extension is certainly not due to the less extensive examination, for in this case it must certainly appear in the relatively well examined district of Angmagsalik south of the here discussed stretch of coast, but here it is certainly wanting. It must therefore be supposed that the

species has immigrated via America (Labrador) and has not yet been able to spread over the whole of the east coast to which it has certainly reached by the way north of Greenland.

76. **Pedicularis flammea** L.

Hartz Fanerog. p. 335. Dusén Gefässpfl. p. 39.

Northern coast-p.: Sabine Ö (H. & K.)! Dronning Augusta Dal, Kap Borlase Warren (D.)!
Northern inlet-p.: Ruth Ö (A. G. N.)! Scott Keltic Ö (D.)! Sophia Stræde (A. G. N.)! Forsblad Fjord (D.)! Canning Land (H. & K.)!
Scoresby Sund: Kap Stewart (D.)! Hurry Inlet (D.)! Jameson Land, Vardeklöft, Liverpool Kyst (H. & K.)! Common West of Danmarks Ö (H.)!
Kap Dalton-p.: Kap Dalton, Turner Sund (H. & K.)!

The species has not been found on the coast between 69° 25′ and 66° 20′ lat. N., and it prefers the interior of the country.

77. **Pedicularis hirsuta** L.

Lge. Consp. Fl. Grl. p. 76. Hartz Fanerog. p. 335. Dusén Gefässpfl. p. 39.

Commonly extended over the whole of the examined coast and observed by all travellers in numerous localities.

78. **Euphrasia latifolia** Pursh.

Dusén Gefässpfl. p. 40. Euphrasia officinalis L. Lge. Consp. p. 79 & 264. Hartz Fanerog. p. 335. Buchenau & Focke. Zweite deutsche Nordp.

Rather rare, found as far as 74° lat. N.

Northern inlet-p.: Jackson Ö (C. & P.)! Franz Joseph Fjord, Kjerulf Fjord (D.)! Forsblad Fjord (A. G. N.)! Fleming Inlet (H. & K.)!
Scoresby Sund: Hurry Inlet (D. H. & K.)! In the interior of Scoresby Sund West of Danmarks Ö (H.)!
Kap Dalton-p.: Turner Sund (H. & K.)! Not observed between 69°30′ and 66° 20′ lat. N. The specimens reach in the outer coast region where the plant is very rare only a height of 1—4 ctm.

in the flowering season (July), while they in the heads of the inlets are 8—15 ctm. high. In the interior it sets fruit in abundance.

79. **Bartschia alpina** L.

Lge. Consp. Fl. Grl. p. 78.

Southern coast-p.: Skærgaards Halvøen (A.)! Kap Warming, Itivsalik, Ikerasarmiut, Vahls Fjord (K.)!

The species was previously not found north of Angmagsalik (by Berlin); the present most northern point, 68°8′, a particularly favourable habitat with manured ground and herby slope is yet considerably more to the south than its northern limit on the west coast. It is very rare north of 66°20′ and only 10 ctm. high, but yet it sets flower everywhere and as far as can be judged from the collected material also fruit. It shuns here the coast, and all finding places are well sheltered, exposed to the south and have the character of herby slopes, while the species more to the south prefers heath.

Fam. 15. Polemoniaceae.

80. **Polemonium humile** Willd.

Lge. Consp. p. 80. Buchenau & Focke l. c. Hartz Fanerog. p. 335. Dusén Gefässpfl. p. 40.

Northern coast-p.: Not rare between 75° and 74° lat. N. in tableland; Sabine Ö (all travellers)! Lille Pendulum Ö (C. & P. D.)! Clavering Ö (C. & P. D.)! Dronning Augusta Dal (D.)! Kap Borlase Warren (D. H. & K.)!

The species grows socially and forms a 10—20 ctm. high cover over spots of an extension of 1—2 □ M. on clayey, sandy ground, especially where the rock comes rather near the surface.

Fam. 16. Gentianaceae.

81. **Gentiana tenella** Rottb.

Lge. Consp. p. 265. Dusén Gefässpfl. p. 41.

Very rare on grassy slopes between 74°30′ and 70°30′.

Northern coast-p.: Sabine Ö 4 1—2 ctm. high flowering specimens (H. & K.)!

Scoresby Sund: Hurry Inlet in Ryders Dal (A. G. N.)! The cleft Hurry Inlet (H. & K.)! The specimens are 2—7 ctm. high with 1—3 flowering stalks and on the greatest ones the capsule is open and contains ripe seeds $^{31}/_{7}$ (H. & K.)!

Fam. 17. Diapensiaceae.

82. **Diapensia lapponica** L.

Lge. Consp. p. 83 & 526. Hartz Fanerog. p. 336.

In table-land and heath.

Scoresby Sund: Common (H.)!

Southern coast-p.: Itivsalik, Kap Jörgensen (K.)!

In this part of the coast (north of 66° 20′) the species is exceedingly rare and not observed above 1000′ height; it has not been found near the sea farther to the north than 67°.

Fam. 18. Pyrolaceae.

83. **Pyrola rotundifolia** L. *α. Grandiflora* (Rad.)

Kolderup Rosenvinge. Medd. om Grönl. XV. p. 68. P. grandiflora Rad. Lge l. c. Hartz, Dusén.

Northern inlet-p.: Kjerulf Fjord, Scott Keltic Ö, Röhs Fjord, Antarctic Havn.

Scoresby Sund: Kap Stewart (D.)! Hurry Inlet, rather common in heath (H. & K. D.)! Common in the interior (H.)!

Fam. 19. Ericaceae.

84. **Arctostaphylos alpina** (L.) Spr.

Lge. Consp. Fl. Grl. p. 86 & 266. Hartz Fanerog. p. 336. Dusén Gefässpfl. p. 41.

Northern inlet-p.: Eleonora Bay in Franz Joseph Fjord (C. & P.)! Moskusoxefjord (K. A. Gr.)! Kjerulf Fjord (D.)! Ruth Ö, Antarctic Havn (A. G. N.)!

Scoresby Sund: Common in the interior west of Danmarks Ö (H.)! Hurry Inlet (D.)! Klitdalen (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!

The species appears in table-land and heath and seeks shelter and snow-cover against the winter; it has been observed only a single time in the proper coast-regions and then in such a locality that it was sheltered against the north wind and in a height above the level of the sea-fog. The extension 73° 30′—69° 25′ lat. N. is considerably smaller and also a little more northern than on the west coast.

85. **Phyllodoce coerulea** (L.) Bab.

Lge. Consp. p. 86 & 266. Hartz Fanerog. p. 336.

Scoresby Sund: In the interior not common. Danmarks Ö, Gaaseland (H.)! Turner Sund, Kap Dalton (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)! Kap Warming Itivsalik (K.)! Not found between 69° 25′ and 66° 40′ lat. N.

In humid heath and herby slopes in sheltered places, especially at the foot of vertical cliffs with southern exposition where there is shelter and constant snow-cover. The species sets flower and fruit abundantly in these localities. The north limit is considerably more southern than on the west coast (74° 18′). The break between 69° 25′ and 66° 40′ is partly and mainly due to the scarce breadth of the country free from ice and partly the cursory examination.

86. **Cassiope tetragona** (L.) Don.

Lge. Consp. p. 87 & 266. Hartz Fanerog. p. 336. Dusén Gefässpfl. p. 42.

Common everywhere between 75° and 69° 30′, collected by all travellers. On the coast it cedes to Empetrum while it is dominant in the heath of the interior. It does not form here any thick plantation as Empetrum, but stands in tufts with the space of 1 to several foot between them and of a height of up to 20 ctm. above the ground. The limit between this and the heath of Empetrum may often be very sharp.

87. **Cassiope hypnoides** (L.) Don.

Lge. Consp. p. 87 & 267. Hartz Fanerog. p. 336. Dusén Gefässpfl. p. 42.

Scoresby Sund: Jameson Land, Danmarks Ö, Gaaseland (H.)! Nordostbugt (H. & K.)! Hurry Inlet (D.)! Vardeklöft (H. & K.)! Liverpool Kyst (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton.
Southern coast-p.: Storbræ, Kap Vedel, N.-Aputitek (A.)! Itivsalik, Kap G. Holm (K.)!

In humid places in heath and herby slopes where there is a large and long lasting snow-cover.

88. **Loiseleuria procumbens** (L.) Desv.

Lge. Consp. Fl. Groenl. p. 88.

Southern coast-p.: Nualik, Kap Warming, Itivsalik, Lilleö, Vahls Fjord.

In table-land and heath rather rare and of scarce importance to the character of the vegetation. The north limit 67° 16′ is far more southern than on the west coast about 75°, and this is certainly not due to the less extensive examination, but possibly to a later immigration. Climatic causes have scarcely set bounds to it.

89. **Rhododendron lapponicum** L.

Lge. Consp. Fl. Grl. p. 88 & 267. Hartz Fanerog. p. 337. Dusén Gefässpfl. p. 42.

Northern coast-p.: Kuhn Ö (C. & P.)! Clavering Ö (D.)! Kap Borlase Warren (A. G. N.)!
Northern inlet-p.: Franz Joseph Fjord (C. & P.)! Ruth Ö, Sofia Sund (A. G. N.)! Scott Keltic Ö, Röhs Fjord (D.)! Forsblad Fjord (A. G. N. H. & K.)! Antarctic Havn (A. G. N.)!
Scoresby Sund: Hurry Inlet (D. H. & K.)! Common in the interior of Scoresby Sund (H.)!
Kap Dalton-p.: Turner Sund, Henry Ö (H. & K.)!

The species shuns the outer coast and is not common in the interior; it bears only a slight part in the heath, appears only singly,

but is yet easily recognizable on account of its short, thick, bloodless branches. In the southern coast part between 69°30′ and 66°20′ it has not been observed; probably because convenient localities — evenly sloping, humid heath — are wanting.

Fam. 20. Vacciniaceae.

90. **Vaccinium uliginosum L.**

Lge. Consp. Fl. Grœnl. p. 90. Hartz Fanerog. p. 337. Dusén Gefässpfl. p. 43.

β. pubescens (Horn.) Lge.

Scoresby Sund: Common (H.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)! Not observed between 69° 25′ and 66° 20′ lat. N.

γ. microphyllum (Lge.).

Common over the whole of the examined coast, collected by all travellers in heath and table-land.

Certainly no reason to separate with Lange l. c. this form as a sub-species, numerous forms of transition being found and both forms of leaves appearing even in the same individual in proportion as the branches are exposed to the wind or sheltered.

Fam. 21. Campanulaceae.

91. **Campanula uniflora L.**

Lge. Consp. Fl. Grœnl. p. 92. Hartz Fanerog. p. 337. Dusén Gefässpfl. p. 43.

Northern coast-p.: Rather common, noted by all travellers.
Northern inlet-p.: Mackenzie Bugt (K. A. Gr.)! Scott Keltic Ö, Robertson Ö, Röhs Fjord (D.)!
Scoresby Sund: Rather common (H.)! Hurry Inlet, common (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!

92. **Campanula rotundifolia** L.

Lge. Consp. Fl. Grœnl. p. 93. Hartz Fanerog. p. 338. Dusén Gefässpfl. p. 44.

β arctica Lge. f. *uniflora* (Lge.).

Northern coast-p.: Clavering Ö (D.)!
Northern inlet-p.: Franz Joseph Fjord (C. & P.)! Kjerulf Fjord, Moskusoxefjord (K. A. Gr.)! Scott Keltic Ö (A. G. N.)! Forsblad Fjord (D. H. & K.)! Kap Brown, Fleming Inlet, Kap Seaforth, Pingels Dal (H. & K.)!
Scoresby Sund: Common.
Kap Dalton-p.: Common.
Southern coast-p.: Kap Warming, Itivsalik, Vahls Fjord (K.)!

γ. stricta Schum.

Common in Danmarks Ö in cracks in the rocks up to 40 ctm. high (H.)!

The species grows as far north as 74° 10′ lat. N., but is not common in the coast region, it is on the other hand frequent in the interior of the country in table-land and herby slopes especially under vertical rocky walls.

Fam. 22. Compositae.

93. **Taraxacum phymatocarpum** J. Vahl.

Lge. Consp. Fl. Grœnl. p. 94. Dusén Gefässpfl. p. 44. Taraxac. phymat. f. albift. Kjellm. Hartz Fanerog. p. 338.

Northern coast-p.: Sabine Ö (all travellers)! Lille Pendulum Ö (A. G. N.)! Clavering Ö (D.)! Hold with hope (H. D.)!
Northern inlet-p.: Mackenzie Bugt (K. A. Gr.)! Ruth Ö, Scott Keltic Ö (A. G. N.)! Kap Seaforth (H. & K.)!
Scoresby Sund: Hurry Inlet (D. H. & K.)! Kap Stewart, Jameson Land, Danmarks Ö, Gaaseland (H. H. & K.)!

Forms with yellow and white (red) flowers are nearly equally common and do not seem to be distinctly separated. The species has not been observed south of Kap Stewart. 70° 25′ n. lat.

94. **Taraxacum croceum** Dahlst.

Dusén Gefässpfl. p. 46. Taraxacum officinale Web. Lge. Consp. Fl. Grœnl. p. 94 & 270. Hartz Fanerog. p. 338.

Commonly extended between 72° and 67° 20′ lat. N., we have not observed it in our most northern places, Sabine Ö etc., wherefore also we suppose as already shown by Hartz l. c. that Sabine's Leontodan palustre floribus luteis must be classed within the preceding species.

95. **Hieracium alpinum** L.

Lge. Consp. Fl. Grœnl. p. 95. Hartz Fanerog. p. 338.

Scoresby Sund: Hurry Inlet, Jameson Land (H. & K.)! Danmarks Ö, Gaaseland, Mudderbugt (H.)!
Kap Dalton-p.: Turner Sund (H. & K.)!
Southern coast-p.: Skærgaards Halvöen (A.)! Kap Warming, Itivsalik, Vahls Fjord (K.)!

96. **Antennaria alpina** Gärtn.

Lge. Consp. Fl. Grœnl. p. 100. Hartz Fanerog. p. 339. Dusén Gefässpfl. p. 46.

Northern inlet-p.: Fleming Inlet (H. & K.)!
Scoresby Sund: Common.
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: The bay south of Storbræ, Skærgaards Halvöen (A.)! Nualik, Kap Warming, Itivsalik, Kap G. Holm, Vahls Fjord (K.)!

β. glabrata J. Vahl.

Northern inlet-p.: Fleming Inlet (H. & K.)!
Scoresby Sund: Hurry Inlet (H. & K.)! Danmarks Ö, Gaaseland (H.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: Kap Warming (K.)!

97. **Erigeron compositus** Pursh.

Lge. Consp. Fl. Grœnl. p. 101. Hartz Fanerog. p. 339. Dusén Gefässpfl. p. 47.

Northern coast-p.: Sabine Ö (all travellers)! Lille Pendulum Ö, Dronning Augusta Dal, Clavering Ö (A. G. N.)!
Scoresby Sund: Hurry Inlet (D.)! Liverpool Kyst (H. & K.)! Jameson Land, Gaaseland (H.)!

In table-land in dry, sandy places as well near the sea as in greater height, rather rare except in the highest North, not observed south of 70° lat. N.

98. **Erigeron uniflorus** L. β. **pulchellus** Fr.

Lge. Consp. Fl. Grœnl. p. 102. Hartz Fanerog. p. 339. Dusén Gefässpfl. p. 47.

Northern coast-p.: Sabine Ö (Sabine, D, H. & K.)! Kap Borlase Warren (H. & K.)! Clavering Ö (D.)! Mackenzie Bugt (K. A. Gr.)!
Northern inlet-p.: Moskusoxefjord (K. A. Gr.)! Scott Keltic Ö (D.)! Fleming Inlet, Kap Seaforth (H. & K.)!
Scoresby Sund: Hurry Inlet (D. H. & K.)! Scsbsd. (H.)!
Kap Dalton-p.: Kap Dalton (H. & K.)! Turner Sund (H. & K.)!
Southern coast-p.: Skærgaards Halvöen (A.)! Kap Warming, Itivsalik, Vahls Fjord (K.)!

I am not able to distinguish E. eriocephalus Vahl from E. uniflorus L., and these species are therefore stated together. Vide Berlin l. c. and Rosenvinge, Andet Tillæg til Grönlands Fanerog. og Karkryptogamer p. 700.

99. **Arnica alpina** (L.) Mur.

Lge. Consp. Fl. Grœnl. p. 103. Hartz Fanerog. p. 339. Dusén Gefässpfl. p. 48.

Common in North East Greenland between 74° 30′ and 69° 25 lat. N.

100. **Matricaria inodora** L. v. **phaeocephala** Rupr.

Dusén Gefässpfl. p. 46.

Northern inlet-p-: Kjerulf Fjord (A. G. N.)!

In Eskimo ruins. The species has only been observed in this single place 73° 10′ lat. N. and only in slight numbers. The indi-

viduals are very vigorous and it is but little probable that this conspicuous plant might have avoided our attention in the numerous ruins we have visited; it is therefore not likely that it appears within the district visited by us, and its appearance in the above-named place is very difficult to explain, the more so, because it is only found in few places in West Greenland between 60° 15′ and 60° 55′ lat. N.

Fam. 23. Polygonaceae.

101. **Koenigia islandica** L.

Lge. Consp. Fl. Grœnl. p. 104 & 277. Hartz Fanerog. p. 339. Dusén Gefässpfl. p. 48.

Northern coast-p.: Sabine Ö (all travellers)! Kap Borlase Warren (H. & K.)! Mackenzie Bugt (K. A. Gr.)!
Northern inlet-p.: Antarctic Havn (A. G. N.)!
Scoresby Sund: Hurry Inlet (H. & K.)! Jameson Land (H. & K.)! Danmarks Ö, Gaaseland (H.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: Nualik (K.)!

102. **Polygonum viviparum** L.

Lge. Consp. Fl. Grœnl. p. 105. Hartz Fanerog. p. 339. Dusén Gefässpfl. p. 48.

Common everywhere in East Greenland between 74° 30′ and 66° 20′ lat. N.

103. **Oxyria digyna** (L.) Campd.

Lge. Consp. Fl. Grœnl. p. 105. Hartz Fanerog. p. 340. Dusén Gefässpfl. p. 49.

Common everywhere in East Greenland.

104. **Rumex acetocella** L.

Lge. Consp. Fl. Grœnl. p. 106. Hartz Fanerog. p. 340. Dusén Gefässpfl. p. 49.

Northern inlet-p.: Kjerulf Fjord (D.)! Röhs Fjord (D.)! Forsblad Fjord (D. H. & K.)!
Scoresby Sund: Hurry Inlet, Kap Greg (H. & K.)! In the heads of the inlets up to 27 ctm. high (H.)!

Fam. 24. Salicaceae.

105. **Salix herbacea** L.

Lge. Consp. Fl. Grœnl. p. 106. Hartz Fanerog. p. 340. Dusén Gefässpfl. p. 49.

Northern coast-p.: Sabine Ö ♂ Fl. July (H. & K.)!
Northern inlet-p.: Forsblad Fjord (D.)! Antarctic Havn (A. G. N.)! Fleming Inlet, Kap Seaforth (H. & K.)!
Scoresby Sund: Common.
Kap Dalton-p. and southern coast-p.: Common.

106. **Salix arctica** Pall.

Lge. Consp. Fl. Grœnl. p. 108. Hartz Fanerog. p. 340. Dusén Gefässpfl. p. 50. Salix glauca Dusén l. c.

Commonly extended over the whole of N. E. Greenland and E. Greenland.

β. grœnlandica Lundstr.

Northern coast-p.: Sabine Ö, Kap Borlase Warren (H. & K.)! Mackenzie Bugt (K. A. Gr.)!
Scoresby Sund: Hurry Inlet (H. & K.)! Common in the interior.
Kap Dalton-p.: Kap Dalton (H. & K.)!

107. **Salix glauca** L.

Lge. Consp. Fl. Grœnl. p. 110. Hartz Fanerog. p. 341.

Scoresby Sund: Common in the interior (H.)!
Kap Dalton-p.: Kap Dalton (H. & K.)!
Southern coast-p.: Common.

f. *subarctica* (And.) Lundstr.

Scoresby Sund: Hurry Inlet (H. & K.)!

Fam. 25. Betulaceae.

108. **Betula nana** L.

Lge. Consp. Fl. Grœnl. p. 112 & 280. Hartz Fanerog. p. 341. Dusén Gefässpfl. p. 50.

Northern inlet-p.: Common, observed by all travellers. Most northern finding-place 73° 40′, Moskusoxefjord (K. A G.)!
Scoresby Sund: Common.
Kap Dalton-p.: Common.
Southern coast-p.: Not observed between 69° 25′ and 66° 20′ lat. N.

The species likes heath and table-land in the interior of the country.

Fam. 26. Liliaceae.

109. **Tofieldia palustris** Huds.

F. borealis Wbg. Lge. Consp. Fl. Grœnl. p. 122. Hartz Fanerog. p. 342. Dusén Gefässpfl. p. 51.

Northern inlet-p.: Moskusoxefjord, Scott Keltic Ö (K. A. Gr.)! Röhs Fjord (D.)! Antarctic Havn (A. G. N.)! Forsblad Fjord (H. & K.)!
Scoresby Sund: Hurry Inlet.
Kap Dalton-p.: Not observed.
Southern coast-p.: Itivsalik (K.)!

110. **Tofieldia coccinea** Richards.

Rosenvinge, 2. Tillæg til Consp. Fl. Grœnl. p. 712. Hartz Fanerog. p. 342. Dusén Gefässpfl. p. 51.

Northern inlet-p.: Forsblad Fjord (A. G. N. H. & K)! Rhedin Fjord (A. G. N)!
Scoresby Sund: Hurry Inlet (H. & K.)!

Fam. 27. Juncaceae.

111. **Juncus biglumis** L.

Lge. Consp. Fl. Grœnl. p. 122 & 284. Hartz Fanerog. p. 342. Dusén Gefässpfl. p. 52. Ostenf. Fl. arct. p. 25.

Pools and humid herby slopes; not common north of Scoresby Sund.

Northern coast-p.: Sabine Ö, common, Kap Borlase Warren (K.)! Hold with hope (H.)! Kap Bror Ruys (C. & P.)!
Northern inlet-p.: Franz Joseph Fjord (C. & P.)! Ruth Ö, Bontekoe Ö. Scott Keltic Ö (A. G. N. D.)! Forsblad Fjord (N. K.)! Ørsteds Dal (H. & K.)! Fleming Inlet, 17 ctm. high (K.)!
Scoresby Sund: Common (H.)! Hurry Inlet (D.)! Liverpool Kyst, Jameson Land (20 ctm. high) and the cleft in Hurry Inlet (K.)! Nordostbugt (H.)!
Kap Dalton-p.: Turner Sund (K.)!
Southern coast-p.: Not observed between 69° 30′ and 66° 20′.

112. **Juncus triglumis** L.

Lge. Consp. Fl. Grœnl. p. 123 & 284. Hartz Fanerog. p. 342. Dusén Gefässpfl. p. 52. Ostenf. Fl. arct. p. 25.

In pools; very rare.

Northern coast-p.: Kap Borlase Warren (in a rill, 5 ctm. high (K.)!
Northern inlet-p.: Ruth Ö, Forsblad Fjord (D.)!
Scoresby Sund: Not common in the interior, Röde Ö, Renodde, Ispynt, Hurry Inlet (D.)!

Var. **Copelandi** Buch.

Zweite Deutsche Nordpolsf. p. 51.

Franz Joseph Fjord (C. & P)! Turner Ö (K.)! 900 m. s. m.

113. **Juncus castaneus** Sm.

Lge. Consp. Fl. Grœnl. p. 123 & 284. Hartz Fanerog. p. 343. Dusén Gefässpfl. p. 52. Ostenf. Fl. arct. p. 24.

Northern coast-p.: Clavering Ö (N.)!
Northern inlet-p.: Franz Joseph Fjord (C. & P.)! Röhs Fjord, Forsblad Fjord (D.)!
Scoresby Sund: In pools, Jameson Land, Danmarks Ö, Ispynt (H.)! Hurry Inlet (D.)! Liverpool Kyst and Ryders Dal (K.)!

114. **Juncus trifidus** L.

Lge. Consp. Fl. Grœnl. p. 123 & 284. Hartz Fanerog. p. 343. Ostenf. Fl. arct. p. 26.

Scoresby Sund: In dry slopes, thickets and table-land; more rare in heath. In the interior, Danmarks Ö, Gaaseland, Röde Ö, up to 20 ctm. high (H.)!

Southern coast-p.: Turner Sund in table-land (K.)! Not observed between 69° 30′ and 67° 16′. Commonly extended south of 67° 16′ in table-land and heath.

115. **Juncus arcticus** Willd.

Lge. Consp. Fl. Grœnl. p. 124 & 284. Hartz Fanerog. p. 343. Dusén Gefässpfl. p. 52. Ostenf. Fl. arct. p. 24.

Northern inlet-p.: Röhs Fjord, Forsblad Fjord (D.)! Örsteds Dal 25 ctm. (K.)!

Scoresby Sund: Common in the interior (H.)! Jameson Land (H.)! Ryders Dal, downs at Bielven 40 ctm. high (H.)! Liverpool Kyst (K.)!

116. **Luzula multiflora** (Ehrh.) Lge.

Lge. Consp. Fl. Grœnl. p. 125 & 285. Hartz Fanerog. p. 343. Ostenf. Fl. arct. p. 31. L. campestris D. E. * frigida Buchen. Dusén Gefässpfl. p. 53.

In thickets up to 45 ctm. high.

Scoresby Sund: Röde Ö (H.)! Hurry Inlet (D.)!

117. **Luzula arcuata** (Wbg.) Sw. *β.* **confusa** Lindeb.

Lge. Consp. Fl. Grœnl. p. 127 & 285. L. confusa Lindeb. Hartz Fanerog. p. 343. Dusén Gefässpfl. p. 53.

In table-land and heath, often snow-less in winter. Common everywhere in North East Greenland, observed by all travellers.

f. *subspicata* Lge.

Northern coast-p.: Sabine Ö (K.)! Kap Borlase Warren (K.)!

Northern inlet-p.: Forsblad Fjord, Kap Brown, Kap Greg.

118. **Luzula nivalis** (Læst.) Beurl.

Gelert: Ostenf. Fl. arct. p. 30. L. arctica Blytt. Lge. Consp. Fl. Grœnl. p. 127. Hartz Fanerog. p. 343. Dusén Gefässpfl. p. 54.

Northern coast-p.: Lille Pendulum Ö (A. G. N.)! Sabine Ö, Kap Borlase Warren (H. & K.)! Hold with hope in dry clay-field (H.)!
Scoresby Sund: Hurry Inlet (H. & K.)! Liverpool Kyst (H. & K.)!

f. *pygmaea* Hartz.

Scoresby Sund: Jameson Land (H.)!

119. **Luzula spicata** (L.) D. C.

Lge. Consp. Fl. Grœnl. p. 128 & 286. Hartz Fanerog. p. 344. Dusén Gefässpfl. p. 53.

In herby slopes and copses of willows, snow covered in winter.

Scoresby Sund: Danmarks Ö (up to 25 ctm.), Gaaseland, Röde Ö, Kobberpynt and several places, especially in the inner inlets (H.)! Hurry Inlet (D.)! The cleft in Hurry inlet (K.)!
Kap Dalton-p.: Kap Dalton (H. & K.)! Turner Sund (K.)!
Southern coast-p.: Kap Irminger (A.)! Nualik (K.)! Kap Warming (K.)! Itivsalik (K.)! Vahls Fjord (K.)!

Fam. 28. Cyperaceae.

120. **Scirpus caespitosus** L. f. **austriaca** Pall.

Sc. caespitos. Lge. Consp. Fl. Grœnl. p. 129 & 286. Rosenv. Till. p. 716. Ostenf. Fl. arct. p. 43.

Southern coast-p.: Itivsalik (K.)!

121. **Eriophorum Scheuchzeri** Hoppe.

Lge. Consp. Fl. Grœnl. p. 129. Hartz Fanerog. p. 344. Dusén Gefässpfl. p. 54.

Common everywhere in East Greenland.

122. **Eriophorum polystachium** L.

Buchenau & Focke Zweite deutsche Nordpolsfarth p. 53. Ostenf. Fl. arct. p. 53. E. angustifolium Roth. Lge. Consp. Fl. Grœnl. p. 130 & 287. Hartz Fanerog. p. 344. Dusén Gefässpfl. p. 54.

Common everywhere in East Greenland.

123. **Elyna Bellardi** (All.).

Lge. Consp. Fl. Grœnl. p. 130 & 287. Hartz Fanerog. p. 344. Ostenf. Fl. arctica. p. 44. Carex parallela Dusén p. 54.

Northern coast-p.: Sabine Ö and Kap Borlase Warren (K.)! Kap Bror Ruys (C. & P.)!
Northern inlet-p.: Franz Joseph Fjord and Röhs Fjord (D.)! Kong Oscar Fjord (H.)! Forsblad Fjord (D., K.)!
Scoresby Sund: Common (H.)! Hurry Inlet (D. H. & K.)!

124. **Kobresia bipartita** (All.) Britton.

Ostenf. Fl. arct. p. 44. K. caricina. Lge. Consp. Fl. Grœnl. p. 130 & 287. Hartz Fanerog. p. 344.

Rare, up to 20 ctm. high (H.)!

Northern inlet-p.: Franz Joseph Fjord (C. & P.)!
Scoresby Sund: Ispynt in Vestfjord (H.)!

125. **Carex nardina** Fr.

Lge. Consp. Fl. Grœnl. p. 131 & 287. Hartz Fanerog. p. 345. Dusén Gefässpfl. p. 55. Ostenf. Fl. arct. p. 48.

Common everywhere in table-land and in other dry places.

126. **Carex dioica** L. v. **parallela** Læstad.

Ostenf. Fl. arct. p. 60. C. parallela, Hartz Fanerog. p. 344 (non Dusén). C. gynocrates Wormsky, Rosenv. Till. p. 717.

In humid pools.

In the innermost of Scoresby Sund: Ispynt in Vestfjord, Röde Ö, tentplace at Röde Ö. rare (H.)!

127. **Carex capitata** Soland.

Lge. Consp. Fl. Grœnl. p. 132 & 287. Rosenv. Till. p. 718. Ostenf. Fl. arct. p. 49.

Southern coast-p.: Lilleö 66° 58′ n. Br. (K.)!

128. **Carex ursina** Dew.

Lge. Consp. Fl. grœnl. p. 132 & 267. Dusén Gefässpfl. p. 55. Ostenf. Fl. arct. p. 59.

Northern coast-p.: Kap Borlase Warren (H. & K.)!
Northern inlet-p.: Röhs Fjord (D.)!
Scoresby Sund: Hurry Inlet (D. H. & K.)!
Kap Dalton-p.: Dunholm (H. & K.)!

129. **Carex scirpoidea** Michx.

Lge. Consp. Fl. Grœnl. p. 132 & 287. Hartz Fanerog. p. 345. Dusén Gefässpfl. p. 55. Ostenf. Fl. arct. p. 82.

Northern inlet-p.: Fleming Inlet (H. & K.)!
Scoresby Sund: Hurry Inlet (D. H. & K.)! Liverpool Kyst (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: Lilleö, Jagos Fjord (K.)!

130. **Carex microglochin** Wbg.

Lge. Consp. Fl. Grœnl. p. 133 & 288. Hartz Fanerog. p. 345. Ostenf. Fl. arct. p. 92.

Scoresby Sund: In humid pools among sphagna, not common, in the inner part of Scoresby Sund, in Danmarks Ö, Röde Ö, Vestfjord (H.)!

131. **Carex rupestris** All.

Lge. Consp. Fl. Grœnl. p. 133 & 288. Hartz Fanerog. p. 345. Dusén Gefässpfl. p. 55. Ostenf. Fl. arct. p. 86.

Northern coast-p.: Sabine Ö, Kap Borlase Warren (H. & K.)! Clavering Ö (A. G. N.)!
Northern inlet-p.: Forsblad Fjord (A. G. N.)!

Scoresby Sund: Common.
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!

132. **Carex incurva** Lightf.

Lge. Consp. Fl. Grœnl. p. 133 & 288. Hartz Fanerog. p. 345. Ostenf. Fl. arct. p. 49.

In sand in humid places, banks of rivers, pools and the like, rather rare.

Northern coast-p.: Kap Borlase Warren (H. & K.)! Clavering Ö, Bontekoe Ö (D.)!
Northern inlet-p.: Kap Seaforth in Örsteds Dal, Scott Keltic Ö (D.)!
Scoresby Sund: Jameson Land and Gaasefjord (Hartz l. c.), Ryders Dal on Bielven; in a stony plain; in a humid little down Fame Öer (H. & K.)!

133. **Carex Macloviana** D. Urv.

Ostenf. Fl. arct. p. 54. C. festiva Dewey. Lge. Consp. Fl. Grœnl. p. 134 & 288. Hartz Fanerog. p. 345.

Scoresby Sund: In herby slopes, copse and table-land, but only in Gaaseland (H.)!

134. **Carex lagopina** Wbg.

Lge. Consp. Fl. Grœnl. p. 135 & 288. Hartz Fanerog. p. 346. Dusén Gefässpfl. p. 56. Ostenf. Fl. arct. p. 58.

In pools, at melting snow-drifts, on the beach etc.

Northern inlet-p.: Sabine Ö, Lille Pendulum Ö (D.)!
Northern coast-p.: Kap Seaforth (H. & K.)! Fleming Inlet (K.)!
Scoresby Sund: Hurry Inlet (D.)! Klöften and Jameson Land (K.)! Kap Stewart (D.)!
Common in Scoresby Sund (H.)!
Southern coast-p.: Kap Irminger, Skærgaards Halvöen (A.)!

135. **Carex alpina** Sw.

Lge. Consp. Fl. Grœnl. p. 138 & 289. Hartz Fanerog. p. 346.

Scoresby Sund: Danmarks Ö, rare (H.)!

136. **Carex misandra** R. Br.

Lge. Consp. Fl. Grœnl. p. 139 & 289. Hartz Fanerog. p. 346. Dusén Gefässpfl. p. 57. Ostenf. Fl arct. p. 88.

Common between 75° and 79° 30′. In heath and table-land, always snow-covered in winter (H.)!

137. **Carex glareosa** Wbg.

Lge. Consp. Fl. Grœnl. p. 137 & 289. Rosenv. Till. p. 720. Ostenf. Fl. arct. p. 58. C. ursina Hartz Fanerog. p. 345.

On clayey and sandy flats near the high-water mark.

Northern coast p.: Sabine Ö (H. & K.)!
Kap Dalton-p.: Kap Dalton, Dunholm (H. & K.)!
Southern coast-p.: Kap Irminger (A.)! Itivsalik (K.)!

138. **Carex bicolor** All.

Lge. Consp. Fl. Grœnl. p. 138. Ostenf. Fl. arct. p. 79.

Southern coast-p.: Only found in N.-Aputitek 67° 48′ (A)!

f. *rostrata* Ostenf.

Perigynium plano-convex., rostro brevi integro.

Scoresby Sund: In a pool in Jameson Land at the Nordostbugt (H. & K.)!

139. **Carex salina** Wbg. f. **subspathacea** (Wormsky).

Ostenf. Fl. arct. p. 73. C. subspathacea Dry. Lge. Consp. Fl. Grœnl. p. 140 & 288. Hartz Fanerog. p. 346. Dusén Gefässpfl. p. 56.

In clay and sand on the beach.

Northern coast-p.: Sabine Ö (D. H. & K.)!
Northern inlet-p.: Franz Joseph Fjord (C. & P.)! Scott Keltic Ö (A. G. N.)! Kap Seaforth (H. & K.)!
Scoresby Sund: Jameson Land and Danmarks Ö (1—5 ctm. high) (H.)! Kap Stewart and Hurry Inlet (D.)!
Kap Dalton-p.: Dunholm (H. & K.)!

140. **Carex rigida** (Good.)

Ostenf. Fl. arct. p. 77. Lge. Consp. Fl. Grœnl. p. 145 & 291. Rosenv. Till. p. 723. Hartz Fanerog. p. 392. C. hyperborea Drej. Lge. l. c. p. 160 & 290. Hartz l. c. p. C. Bigelowii. C. saxatilis. C. Fyllæ Holm. C. Warmingii Holm. C. vulgaris Fr. C. stans. Dry. C. limula Fr. C. grœnlandica Lge. C. Drejeriana. Lge l. c.

Northern inlet-p.: Fleming Inlet (H. & K.)!
Scoresby Sund: Common.

f. *Bigelowii* Tuch.

C. hyperborea Drejer. Hartz l. c.

Northern inlet-p.: Forsblad Fjord (H. & K.)!
Southern coast-p.: Kap Vedel, Skærgaards Halvöen (A.)!

141. **Carex capillaris** L.

Lge. Consp. Fl. Grœnl. p. 148 & 292. Hartz Fanerog. p. 346. Dusén Gefässpfl. p. 57. Ostenf. Fl. arct. p. 90.

In heath and table-land, especially in clefts, snow-covered in winter (Hartz)!

Northern inlet-p.: Franz Joseph Fjord (D.)! Kjerulf Fjord (D.)!
Scoresby Sund: Several places (H.)! Hurry Inlet (D. H. & K.)! Liverpool Kyst (K.)! Jameson Land at Nordostbugt (H.)!
Kap Dalton-p.: Turner Sund (K.)! Henry Ö, 850 M. above the sea (Koch)!
Southern coast-p.: Kap Jörgensen (Itivsalik) (K.)!

142. **Carex rariflora** (Wbg.) Sm.

Lge. Consp. Fl. Grœnl. p. 150 & 292. Hartz Fanerog. p. 347. Dusén Gefässpfl. p. 57. Ostenf. Fl. arct. p. 67.

In pools, on banks of rivers and lakes, up to 15 ctm. high (Hartz)!
Scoresby Sund: Danmarks Ö and Röde Ö (H.)! Hurry Inlet (D.)! Jameson Land at the Nordvestbugt (H.)! Rare.

143. **Carex pedata** Wbg.

Lge. Consp. Fl. Grœnl. p. 151 & 293. Hartz Fanerog. p. 347. Ostenf. Fl. arct. p. 87.

In table-land, especially in cracks in the rocks.

Scoresby Sund: Not rare. Danmarks Ö, Gaasefjord, Röde Ö.
Kap Dalton-p.: Turner Sund (K.) 69° 44′.
Southern coast-p.: Langö. 67° 5′.

144. **Carex supina** Wbg.

Lge. Consp. Fl. Grœnl. p. 151 & 293. Hartz Fanerog. p. 347. Dusén Gefässpfl. p. 57. Ostenf. Fl. arct. p. 95.

Northern inlet-p.: The inner part of Kjerulf Fjord (Dus.).
Scoresby Sund: In table-land and dry cracks, together with dry pools in the inner part (H.)!

145. **Carex rotundata** Wbg.

Lge. Consp. Fl. Grœnl. p. 152 & 293. Rosenv. Till. p. 724. Ostenf. Fl. arct. p. 94.

Scoresby Sund: Only found in a pool at the Nordostbugt (H. & K.)!

146. **Carex pulla** Good.

Lge. Consp. Fl. Grœnl. p. 153 & 293. Hartz Fanerog. p. 347. Dusén Gefässpfl. p. 57. Ostenf. Fl. arct. p. 95. C. saxatilis L.

Northern inlet-p.: Forsblad Fjord (D. H. & K.)! Kap Seaforth (Örsted Dal) (H. & K.)!
Scoresby Sund: In pools and puddles, exceedingly common (H.), several places in Hurry Inlet, in pools at the Nordostbugt (H. & K.)!

Fam. 29. Gramineae.

147. **Alopecurus alpinus** Sm.

Lge. Consp. Fl. Grœnl. p. 156. Hartz Fanerog. p. 347. Dusén Gefässpfl. p. 57. Ostenf. Fl. arct. p. 99.

Northern coast-p: Commonly extended and observed by all travellers.
Northern inlet-p.: Scott Keltic Ö, Bontekoe Ö (D.)!
Scoresby Sund: Common in the outer parts, not observed in the inner inlets (H.)! Common in Hurry Inlet (H. & K.)!
Kap Dalton-p.: Turner Sund (H. & K.)!

The species likes sandy and clayey humid flats and manured places (old Eskimo places of residence) and is certainly commonly extended over the whole of the coast north of 69° 25′ lat. N., it is on the other hand not found in the corresponding localities of the interior. It is upon the whole not observed south of 69° 25′, nor is it certainly found, while it grows as far south as 61° 53′ in West Greenland and is not rare there north of 66° lat. N.

148. **Hierochloa alpina** (Lilljebl.) R. & S.

Lge. Consp. Fl. Grœnl. p. 157. Hartz Fanerog. p. 348. Dusén Gefässpfl. p. 58.

Northern coast-p.: Shannon Ö (C. & P.)! Sabine Ö (all travellers)! Kap Borlase Warren (H. & K.)! Hvalros Ö, Clavering Ö (D.)! Hold with hope (H.)!
Northern inlet-p.: Kjerulf Fjord, Scott Keltic Ö, Röhs Fjord, Forsblad Fjord, Kap Parry (D.)! Antarctic Havn (A. G. N.)! Kap Greg (H. & K.)!
Scoresby Sund: Very common, up to 50 ctm. high (H.)! Common in Hurry Inlet (H. & K.)!

The species has not been observed south of 70° lat. N. on the east coast except a single locality 61° 32′, Anoritak (Vahl), that must be considered in coherence with the southern west coast. It is commonly extended from 70° to the most northern visited points as in the corresponding parts of West Greenland, wherefore its appearance certainly must be considered as coherent.

149. **Agrostis borealis** Hartm.

Murb. in Bot. Nol. 1898. p. 11. Ostenf. Fl. arct. p. 109. A. rubra L. Lge. Consp. Fl. Grœnl. p. 157 & 295. Hartz Fanerog. p. 348.

Scoresby Sund: Danmark Ö, tentplace at Röde Ö, not common (H.)!

f. *mutica* Hartz l. c.

Scoresby Sund: Röde Ö (H.)!

Only found in the interior of Scoresby Sund and here not common, besides not observed on the coast north of 66°20′ lat. N.

150. **Calamagrostis arundinacea** (L.) Roth.

Ostenf. Fl. arct. p. 102. C. purpurascens R. Br. Lge. Consp. Fl. Grœnl. p. 160. Hartz Fanerog. p. 348. Dusén Gefässpfl. p. 58. C. hyperborea Dusén (non Lge.) l. c. p. 58.

Northern coast-p.: Clavering Ö (D.)!
Northern inlet-p.: Franz Joseph Fjord (C. & P.)! Kjerulf Fjord, Röhs Fjord (D.)! Forsblad Fjord (D. H. & K.)! Polhelms Dal, Kap Greg (H. & K.)!
Scoresby Sund: Common everywhere (H.)! Hurry Inlet common (H. & K.)!
Kap Dalton-p.: Turner Sund (H. & K.)! Stewart Ö (Kock)!

This considerable species forms often thick plantations on the slopes and reaches a height of 50—70 ctm. in the interior of the country; it is very rare immediately near the sea and reaches there only a height of 20—25 ctm. It has upon the whole not been found south of 69° 35′ lat. N. in East Greenland.

151. **Calamagrostis neglecta** (Ehrh.) Gelert.

Ostenf. Fl. arct. p. 103. C. stricta β borealis. Lge. Consp. Fl. Grœnl. p. 161. Hartz Fanerog. p. 348. Dusén Fanerog. p. 58.

In pools, in sandy flats and on lakes.

Northern inlet-p.: Antarctic Havn (A. G. N.)! Kap Seaforth (H. & K.)!
Scoresby Sund: Hurry Inlet at Ryders Elv (H. & K.)! Nordostbugt (H. & K.)! Kingua Gaasefjord, Vestfjord (H.)!

152. **Aira cæespitosa** L. f. **alpina** (L.).

Ostenf. Fl. arct. p. 113. A. alpina. Lge. Consp. Fl. Grœnl. p. 163 & 296. A. brevifolia Buchenau & Focke l. c. p. 54. Hartz Fanerog. p. 348.

Northern coast-p.: (Sabine!) Sabine Ö (H. & K.)! Kap Phillip Broke (C. & P.)! Hold with hope (H.)!

The collected specimen is small, c. 7 ctm. high and was found in a paved clayey flat near Germania Havn. Outside the range 73° 30'—70° 30' lat. N. the species is found only south of 66° 20' lat. N. and certainly it does not occur on the interjacent coast.

153. **Trisetum subspicatum** (L.) Beauv.

Lge. Consp. Fl. Grœnl. p. 164 & 297. Hartz Fan. and Karkrypt. p. 349. Dusén Gefässpfl. p. 59. Ostenf. Fl. arct. p. 110.

Commonly extended everywhere in North East Greenland and observed by all travellers in numerous localities as well near the sea as in the interior of the inlets.

154. **Pleuropogon Sabinei** R. Br.

Lge. Consp. Fl. Grœnl. p. 297. Dusén Gefässpfl. p. 59.

In shallow ponds.

Northern inlet-p.: Mackenzie Bugt 73° 50' n. Lat. (Gredin)!
Scoresby Sund: Hurry Inlet (Arfvidson)! Pond at Ulveodde. Several ponds on the side of the Liverpool Kyst opposite Fame Öer (H. & K.)!

This remarkable species was first found by Cand. Arvidsen on the Nathorst expedition in 1899 and we found it in several places on Hurry Inlet, and at the same time it was collected far more to the north by Gredin. It is possibly more extended than stated by these few finding-places, but being little conspicuous and easily hiding itself between Carex rariflora to which it bears an outward resemblance, it is easily overlooked which may possibly explain its peculiar appearance.

155. **Dupontia Fischeri** R. Br.

Chloris Melvilliana p. 33. Gelert in Ostenf. Fl. arct. p. 114. Dupontia psilosantha Rupr. Lge. Consp. Fl. Grœnl. p. 165.

Northern coast-p.: Sabine Ö (H. & K.)!
Scoresby Sund: Hurry Inlet Klöften (H. & K.)!

Geograf-distribution: West Greenl. 69° 20′—70° 40′ and 81°30′ lat. N. Arct. America—Asia Spitsbergen. Frantz Joseph Land. Novaya Zemlya—NE. Amerika, N. Russia.

In grassy slopes in humid places.

156. **Phippsia algida** R. Br.

Chloris Melvilleana. Gelert in Ostenf. Fl. arct. p. 101. Catabrosa algida (Sol) Fr. Lge. Consp. Fl. Grœnl. p. 166 & 298. Hartz Fanerog. p. 349. Dusén Gefässpfl. p. 59.

Northern coast-p.: Shannon Ö (C. & P.)! Sabine Ö (H. & K.)! Hold with hope (H.)! Hvalros Ö (Gr.)!

Northern inlet-p.: Kap Bennet (D.)! Franz Joseph Fjord (C. & P.)! Fleming Inlet (H. & K.)!

Scoresby Sund: Common especially in the outer part (H.)! Hurry Inlet; common (H. & K.)!

Kap Dalton-p.: Turner Sund, Kap Dalton, Dunholm (H. & K.)!

Southern coast-p.: N.-Aputitek (Amdrup)! Nualik, Kajarsak, Kap Hildebrandt, Kap Warming (K.)!

The species is common south of Scoresby Sund attaining there especially in the manured places round house ruins and in tent-places a considerable size and luxuriance. Straws of a length of 15 ctm. are not rare and it forms a cover together with Cerastium trigynum. It appears less frequently more to the north and then in humid places and most often near the sea.

157. **Arctagrostis latifolia** (R. Br.) Griseb.

Ledebour Fl. Ross. IV. p. 434. Ostenf. Fl. arct. p. 107. Colpodium latifolium. Lge. Consp. Fl. Grœnl. p. 166. Hartz Fanerog. p. 349. Dusén Gefässpfl. p. 59.

Northern coast-p.: Sabine Ö (H. & K.)! Kap Borlase Warren (D. H. & K.)! Kap Bror Ruys (C. & P.)!

Northern inlet-p.: Moskusoxefjord (Gr.)! Franz Joseph Fjord (C. & P.)! Scott Keltic Ö, Sofia Sund (A. G. N.)!

Scoresby Sund: Common east of Danmarks Ö, but not found in the interior (H.)! Hurry Inlet common (D. H. & K.)!

The species reaches a height of up to 50 ctm. and is only found in the outer part of the inlets, besides along the outer coast, and is rather common. It has not been observed south of 70° lat. N.

158. **Glyceria distans** (L.) Wbg.

Gelert in Ostenf. Fl. arct. p. 127. G. Borreri Lge. Consp. Fl. Grœnl. p. 167. G. arctica Lge. l. c. p. 169. G. vaginata Lge. l. c. p. 168. G. angustata Dusén Gefässpfl. p. 60.

Northern inlet-p.: Kjerulf Fjord (A. G. N., D.)!
Scoresby Sund: Hurry Inlet on Ryder Elv, Hurry Inlet the side of Jameson Land (H. & K.)!

This species was found in a few localities in Hurry Inlet, but only very scarcely in humid, clayey sandy flats, washed out by the river. It formed spread tufts with a space of several meters between them alternating with as many spread individuals of G. maritima. Farther up in the country where the ground was somewhat more dry, a thicker plantation was found mixed up with Potentilla pulchella, Taraxacum phymatocarpun, Carex ursina and Salix grœnlandica. The species has not before been stated from East Greenland, but going through the collections from the Nathorst expedition in Stockholm and Upsala I found under the indication of G. angustata specimens that undoubtedly must be reckoned within this.

159. **Glyceria maritima** (Huds.) Wbg. f. **vilfoidea** And.

Lge. Consp. Fl. Grœnl. p. 168 & 299. G. vilfoidea Lge. l. c. p. 170 & 300. Hartz Fanerog. p. 349. Dusén Gefässpfl. p. 60.

Northern coast-p.: Sabine Ö (A. G. N. H. & K.)! Kap Borlase Warren (H. & K.)! Dronning Augusta Dal (A. G. N.)!
Northern inlet-p.: Forsblad Fjord (A. G. N.)! Polhems Dal (H. & K.)! Kap Seaforth (H. & K.)!
Scoresby Sund: Jameson Land, Danmark Ö, Röde Ö, Nordvestfjord, Gaasefjord and several other places (H.)! Hurry Inlet (A. C. N.)! Fame Öer, the side of Jameson Land in Hurry Inlet, Ulveodde, Liverpool Kyst, Kap Hope, Kap Stewart, Kap Tobin, Nordostbugt (H. & K.)! Stony plain on Bielven (H. & K.)!
Kap Dalton-p.: Turner Sund, Dunholm (H. & K.)!

160. **Glyceria angustata** (R. Br.) Fr.

Lge. Consp. Fl. Grœnl. p. 171 & 300. Hartz Fanerog. p. 349 ex parte. Dusén Gefässpfl. p. 60.

Northern inlet-p.: Vega Sund (D.)! Kjerulf Fjord (D.)!
Scoresby Sund: Jameson Land (H.)! Nordostbugt, Ryders Dal, Fame Öer (H. & K.)!

Going through the collections of the Nathorst expedition I found the above-named specimens which I class within this species. It appears in stony sand near the water. The species has not been observed between 70° and 66° lat. N.

161. **Glyceria Vahliana** (Liebm.) Th. Fr.

Lge. Consp. Fl. Grœnl. p. 171 & 300. G. angustata Hartz Fanerog. p. 349 ex parte. Ostenf. Fl. arct. p. 126.

Scoresby Sund: Kap Stewart (H. 1895), Ryders Dal, Hurry Inlet on the side of the Liverpool Kyst (H. & K.)!

Going through the previous collections I found among the glycerias collected by Hartz one that must certainly be classed within this species which was also done by the late Gelert in Fl. arct. l. c.

162. **Poa abbreviata** R. Br.

Lge. Consp. Fl. Grœnl. p. 172. Hartz Fanerog. p. 349. Dusén Gefässpfl. p. 60.

Northern coast.p.: Sabine Ö (H. & K.)! Lille Pendulum Ö, Hvalros Ö (D.)! Kap Borlase Warren (D. H. & K.)! Clavering Ö (C. & P.)!
Northern inlet-p.: Franz Joseph Fjord (C. & P.)!
Scoresby Sund: Jameson Land (H.)! Hurry Inlet (A. G. N.)!

The species is commonly extended in the northern coast part and appears else but very spread which is also consistent with its high arctic extension in other respects. It must most reasonably be looked on as a high arctic form of P. laxa the northern limit of which is also nearly identical with its southern limit and to which it bears very great resemblance.

163. **Poa glauca** M. Vahl.

Lge. Consp. Fl. Grœnl. p. 172. Hartz Fanerog. p. 350. Dusén Gefässpfl. p. 60.

α. genuina Lge.

Commonly extended over the whole of the east coast in tableland and heath.

β. elatior Anderson.

Scoresby Sund: Commonly extended in the interior (H.)! Hurry Inlet; common, Fame Öer (H. & K.)!

γ. palida Lge.

Southern coast-p.: Kap Irminger (A.)!

δ. abroviolacea Lge.

Scoresby Sund: Kap Stewart (H.)!
Kap Dalton-p.: Turner Sund (H. & K.)!

f. *arenaria* Hartz l. c.

Scoresby Sund: Jameson Land (H.)! Ryders Dal in downs (H. & K.)!

164. **Poa nemoralis** L. v. **palida** Lge.

Lge. Consp. Fl. Grœnl. p. 175. Hartz Fanerog. p. 350.

Scoresby Sund: In a humid crack in the rock in mica-slate, in shelter, snow-covered in winter, Danmarks Ö (H.)!

165. **Poa alpina** L.

Lge. Consp. Fl. Grœnl. p. 176 & 302. Hartz Fanerog. p. 350. Dusén Gefässpfl. p. 61.

Northern coast-p.: Lille Pendulum Ö, Kap Borlase Warren (D.)! Hold with hope.
Northern inlet-p.: Kjerulf Fjord (D.)! Antarctic Havn, Scott Keltic Ö (A. G. N.)!
Scoresby Sund: Common (H.)! Hurry Inlet (H. & K.)! Kap Stewart (D.)!

f. *vivipara.*

Northern inlet-p.: Kap Seaforth (H. & K.)!

Scoresby Sund: In the outer parts (H.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: Storbræ (Amdrup)! Kap Warming, Itivsalik (K.)!

166. **Poa pratensis** L.

Lge. Consp. Fl. Grœnl. p. 176 & 301. Hartz Fanerog. p. 350.

Northern inlet-p.: Kap Brown, Kap Greg (H. & K.)!
Scoresby Sund: Commonly extended (H.)! Hurry Inlet; common (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: Kap Grivel (Amdrup)! Kap Warming (K.)!

The northern limit of the species is at 71° 50′ lat. N.

167. **Poa cenisia** All.

Gelert in Ostenf. Fl. arct. p. P. flexuosa Wbg. Lge. Consp. Fl. Grœnl. p. 178 & 302. Hartz Fanerog. p. 351. Dusén Gefässpfl. p. 61. P. filipes Lge. l. c. p. 175. P. laxa R. Br. and P. arctica R. Br. Buchenau & Focke.

Common everywhere in East Greenland and observed by all travellers.

168. **Festuca ovina** L.

Rosenv. Till. p. 735 & 736. Lge. Consp. Fl. Grœnl. p. 179 & 302. Hartz Fanerog. p. 351. Dusén Gefässpfl. p. 62. Buchenau & Focke. Festuca duriuscula L. Lge. l. c. p. 180. F. Richardsonii Hook Lge. l. c. 181. F. *borealis Lge. l. c. 179. F. brevifolia R. Br. Lge. l. c. 179.

Common everywhere in East Greenland and observed by all travellers. The species is very variable, but the variations pass so evenly into each other that it is very difficult to separate them when a greater material is looked at; I therefore put down only the main species and do not state localities for any one of the forms. It is besides my conviction that all forms may be found in nearly every locality if one occupies oneself specially with them.

169. **Festuca rubra** L. var. **arenaria** (Osb.).

Lge. Consp. Fl. Grœnl. p. 180 & 302. Hartz Fanerog. p. 352. Dusén Gefässpfl. p. 62.

Northern coast,p.: Kap Borlase Warren (H. & K.)!
Northern inlet-p.: Kjerulf Fjord (D.)! Forsblad Fjord (A. G. N.)! Kap Seaforth, Fleming Inlet (H. & K.)!
Scoresby Sund: Jameson Land, common in the interior of the inlets (H.)! Hurry Inlet (H. & K.)!

Appears especially in sandy and gravelly flats and is down forming where there is sand-drift. It is more frequent in the interior of the country than on the outer coast because localities convenient for it are oftener found there than on the cleansed coast.

Fam. 30. Lycopodiaceae.

170. **Lycopodium Selago** L. f. **appressa** Desv.

Lge. Consp. Nr. 356 p. 303. Dusén Gefässpfl. p. 62. Hartz Fanerog. p. 352.

Northern coast-p.: Sabine Ö (D. H. & K.)! Hold with hope (H.)!
Northern inlet-p.: Sofia Sund (A. G. N.)! Scott Keltic Ö (D.)! Antarctic Havn (A. G. N.)!
Scoresby Sund: Common (H.)! Hurry Inlet, Jameson Land, Liverpool Kyst (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!
Southern coast-p.: N.-Tasiusak, Itivsalik, Lilleö, Vahls Fjord (K.)!

171. **Lycopodium annotinum** L. f. **pungens** Desv.
(= β alpestre Hartm.) Ostenf. Fl. arct. p. 12.

Lge. Consp. Fl. Grœnl. p. 184. Hartz Fanerog. a. Karkrypt. p. 352.

Scoresby Sund: Not found in the coast region north of 66° 20′ lat. N. (H.)!

172. **Lycopodium alpinum** L.

Lge. Consp. Fl. Grl. p. 184 & 303. Hartz Fanerog. p. 352.

Scoresby Sund: Not found on the coast region north of 66° 20′ lat. N. (H.)!

Fam. 31. Polypodiaceae.

173. **Aspidium fragrans** (L.) Sw.

Ostenf. Fl. arct. p. 5. Lastræa fragrans L. Lge. Consp. p. 186 & 305. Hartz Fanerog. p. 352.

Scoresby Sund: Only in Bregnepynt leaves of the length of 10—12 ctm. (H.)!

174. **Cystopteris fragilis** (L.) Bernh.

Lge. Consp. Fl. Grl. p. 188 & 306. Hartz Fanerog. a. Karkrypt. p. 352. Dusén Gefässpfl. p. 63. Ostenf. Fl. arct. p. 6.

Northern coast-p.: Sabine Ö (D. H. & K.)! Clavering Ö, Jackson Ö (C. & P. D.)! Hold with hope (D.)!
Northern inlet-p.: Franz Joseph Fjord (C. & P.)! Kjerulf Fjord, Ruth Ö, Scott Keltic Ö, Forsblad Fjord (D.)! Kap Brown.
Scoresby Sund: Common (H.)!
Kap Dalton-p.: Turner Sund, Kap Dalton. Not observed between 69° 25′ and 66° 20′ lat. N.

175. **Woodsia ilvensis** (R. Br.).

Gelert in Ostenf. Fl. arct. p. 7. Lge. Consp. Fl. Grœnl. p. 188 & 307. Hartz Fanerog. p. 352. Dusén Gefässpfl. p. 63.

α. rufidula (Michx.) Kock. W. ilvensis R. Br.

Northern coast-p.: Sabine Ö (H. & K.)!
Scoresby Sund: Common (H.)! Hurry Inlet; common (H. & K.)!
Kap Dalton-p.: Turner Sund (H. & K.)!
Southern coast-p.: Kap Warming, Ikerasarmiut, Lilleö, Vahls Fjord (K.)!

β. alpina (Bolton) Ascherson & Gräbner. W. hyperborea R. Br.

Northern inlet-p.: Franz Joseph Fjord (C. & P.)!
Scoresby Sund: Common (H.)! Hurry Inlet (H. & K.)!

γ. *glabella* (R. Br.) Trautv. W. glabella R. Br.

Northern coast-p.: Sabine Ö (D.)! Hold with hope (H.)! Kap Borlase Warren (D.)!
Northern inlet-p.: Scott Keltic Ö (D.)! Polhems Dal, Forsblad Fjord (H. & K.)! Fleming Inlet (H. & K.)!
Scoresby Sund: Röde Ö (H.)! Hurry Inlet (D.)!

Fam. 32. Ophioglossaceæ.

176. **Botrychium Lunaria** (L.) Sw.

Lge. Consp. Fl. Grœnl. p. 190 & 307. Hartz Fanerog. and Karkrypt. p. 353. Ostenf. Fl. arct. p. 2.

Northern inlet-p.: Fleming Inlet, Pingels Dal (H. & K.)!
Scoresby Sund: Gaaseland (H.)!

Fam. 33. Equisetaceae.

177. **Equisetum variegatum** Schleich.

Lge. Consp. Fl. Grœnl. p. 191. Hartz Fanerog. p. 353. Dusén Gefässpfl. p. 63.

Northern coast-p.: Sabine Ö (D. H. & K.)! Kap Borlase Warren (H. & K.)!
Northern inlet-p.: Kjerulf Fjord (D.)! Ruth Ö, Scott Keltic Ö (A. G. N.)! Forsblad Fjord (D.)! Kap Seaforth, Fleming Inlet (H. & K.)!
Scoresby Sund. Common (H.)! Hurry Inlet; common (H. & K.)!
Kap Dalton-p.: Turner Sund, Kap Dalton (H. & K.)!

β. *anceps* Milde. Eq. scirpoides Hartz, Buchenau & Focke l. c.

Northern coast-p.: Sabine Ö (all travellers)! Lille Pendulum Ö (D.)! Clavering Ö (D.)! Hold with hope (H.)! Kap Borlase Warren (H. & K.)!
Northern inlet-p.: Kap Seaforth (H. & K.)!

Scoresby Sund: Common (H.)! Hurry Inlet; common (H. & K.)! Kap Dalton-p.: Kap Dalton (H. & K.)!

Not noted between 69° 25′ and 66° 20′ lat. N.

178. **Equisetum arvense** L.

Lge. Consp. Fl. Grœnl. p. 191. Hartz Fanerog. p. 352. Dusén Gefässpfl. p. 63. Ostenf. Fl. arct. p. 10.

β. borealis Milde.

Scoresby Sund: Common (H.)! Hurry Inlet; common (H. & K.)! Kap Dalton-p.: Kap Dalton (H. & K.)!

γ. decumbens C. F. W. Mey. (f. alpestre Wbg.)

Commonly extended over the whole of the coast, noted by all travellers.

δ. campestre F. Schultz.

Scoresby Sund: Jameson Land (H.)!

ε. rivulare Huth. (f. arctica Rupr.).

Scoresby Sund: Hurry Inlet (H. & K.)!

15—4—1905.

VI.

List

of Phanerogams and Vascular Cryptogams found in the

Angmagsalik District

on the East coast of Greenland between 65° 30′ and 66° 20′ lat. N.

By

Chr. Kruuse.

1906.

Introduction.

The plants mentioned in this list were mainly collected during the two Greenland Expeditions of Amdrup and during a third journey undertaken by me, in the years 1898—99, 1900 and 1901—02. They were mostly collected and determined by myself. The plants found by Berlin and Nathorst during the short stay of "Den andra Dicksonska Expeditionen" in Kong Oscars Havn (Tasiusak) in 1883 are also entered in the list. They are published partly in the description of this expedition, partly in Kgl. Sv. Vetenskaps-Akademiens Handlingar og Bihang (see Literary List). I have also embodied the small collection brought home by Mr. Knutsen from the Danske Konebaads-Expedition in 1883—85 and published in Medd. om Grønl. III & IX together with the species found by Cand. Bay during the Expedition of Ryder in 1892 at Tasiusak and published by Mag. scient. N. Hartz in Medd. om Grønl.

The limits of the district were traced from botanical and practical reasons. The northern limit is purely botanical and climatic, being distinctly expressed at Kap Wandel on abt. 66° 18′ lat. N. Here the coast becomes wider, the current that farther northward has kept the ice to the land now turns out, the inlets towards the south are broad and deep. The most northern points I have visited are at the inner end of the Sermilik inlet on about the same latitude, and I have therefore traced the limit at the "Lille Isfjord" west of Kap Wandel on 66° 20′ lat. N. The southern limit falls through the outer end of the

Sermilik inlet on 65° 30′ lat. N. and 38° long. W., so that the most southern point examined is the Adloe-Dal at Kap Dan (Naujanguit). The very west side of the Sermilik inlet I have found no opportunity of examining in its outer southern part, and it is therefore natural for me to stop here. However, the limit is scarcely good from a botanical point of view as this west side, as far I can see, must have quite a similar vegetation to the district described here though somewhat influenced by the slight extent of the land free from ice. The right limit ought perhaps to be traced 25′ more west at the western point of the outer end of the inlet, Nukajik.

The district south (west) of this, Inigsalik, will certainly when examined more exactly show a similar character to the region north of 66° 20′ lat. N., the area being narrow between the inland ice and the sea without any belt of rocks and islands along the coast. But certainly it will turn out to be of a more southern type. Practically it is still unknown from a botanical point of view.

This district, Angmagsalik, forms geographically spoken a whole, this part of the coast being characterized by being free from ice on a very broad area, by the large far penetrating inlets and by the numerous islands along the coast among which the Angmagsalik island takes the foremost place. It forms like Scoresby-Sund, an oasis, as it were, on the coast besides so poor.

All inlets and sounds together with the islands except some of those farthest out have been visited and examined though in a very different degree. While for instance the environs of the trading station, Tasiusak, and the ramifications of the Angmagsalik inlet have been relatively thoroughly examined and will scarcely contribute any more to the flora of the Phanerogams, several of the most eastern points were only visited once, abt. 2 hours for every locality. Still, this is but of slight import, for I have when staying for a rather long time

(11 days) on Stenö in 1899 convinced myself that the flora of the outer coast may be perfectly well collected at such a short visit, and in 1902 I have got at the same result through controlling visits at localities formerly untrodden.

The localities examined are in enumeration of the localities arranged in a series from East to West, the district having its main coast in this direction and also its greatest extent, while the extreme points are at a distance of hardly one degree of latitude from each other. Within this main arrangement they are arranged from North to South in the individual inlets, so that they may be the more easily found out, many of the localities with characteristic vegetation being on about the same latitude though they are widely separated in east-western direction and belong to different systems of inlets. Latitudes and Longitudes are stated, partly according to the maps published in Medd. om Grönl. IX, X and XXVII, partly, for the localities outside these, according to a map designed by Commander G. Holm, but not published, and if no wider limits are stated they pass as a rule for the landing-place.

Localities.	Lat. N.	Long. W. of Grw.
Adloe	65° 31′	37° 5′
Akiliarisek	66° 18′	37° 35′
Aluit	65° 36′	37° 11′
Amagâ (Præstefjæld)	65° 38′	37° 37′
Amagak	66° 18′	37° 25′
Amakâ (Kap Hörring)	65° 38′—39′	37° 34′
Amitsuarsik	65° 36′	37° 23′
Anava	65° 36′	37° 10′
Depot Ö	66° 7′	35° 31′
Elvbakker	65° 37′	37° 34′—40′
Eskimo Ö	66° 15′	35° 15′
Grus Ö	66° 2′	35° 45′
Ikatek	65° 56′	36° 34′
Ikerasak Fugleholme	65° 49′	36° 50′
Ikerasarsik	65° 35′	37°
Ikerasausak	66° 0′—5′	37° 20′—30′

Localities.	Lat. N.	Long. W. of Grw.
Ingmikertok	65° 45′	36° 59′
Ingmikertorajik	65° 54′	37°
Isi	65° 58′	37° 40′
Jærn Ö	65° 57′	35° 54′
Kanganitsai	65° 56′	37°
Kangarsik	65° 49′	36° 54′
Kangerdluarsikajik	65° 57′	36° 10′
Kangerdlugsuatsiak	66° 16′—19′	35° 17′—27′
Kap Wandel	66° 18′	34° 46′
Kernertok	65° 45′	37° 5′
Kernertuarsuit..............	65° 42′	37° 12′
Kingak Angmagsivik.........	65° 57′	37° 1′
Kingorsuak	66° 5′—10′	37° 5′—15′
Kordlortok Sö..............	65° 41′	37° 31′
Kuarmiut	65° 52′	37° 35′
Misutok	66° 0′	36° 58′
Moræne Ö	66° 2′	35° 39′
Nigertusok	66° 18′	34° 53′
Norsit	65° 33′	37° 8′
Nunakitit	65° 35′	37° 10′
Sarfak	65° 55′	36° 15′
Sarfakajik	65° 38′	37° 25′
Sermilik Vejen	65° 39′	37° 40′
Sierak	65° 56′	37° 5′
Smalsund	65° 59′	35° 50′
Sten Ö	66° 3′	35° 31′
Stor Ö	66° 15′	35° 22′
Tasiusak	65° 37′	37° 33′
Tasiusarsik kitdlek	65° 37′	37° 15′
Tasiusarsik i Angmagsalik Fjord	65° 47′	37° 4′
Tiningnekelak	65° 54′	37° 40′
Tunok.....................	65° 53′	36° 45′—50′
Umivik	65° 39′	37° 5′
Unartok...................	65° 52′	37° 27′
Utorkarmiut	65° 54′	36° 18′
Ödesund	66° 10′	35° 23′

According to the collections of Berlin and Knutsen in 1883 and 84 we knew from Angmagsalik 109 species, to which Nathorst in a later work adds still 2 species, thus in all 111. To these Hartz adds 5 on the basis of the collections of Bay, so that 116 species were known from the district in 1892 (not as stated by Hartz (l. c. p. 392) 120). Of these 116 species are omitted *Triglochin palustre*, as well as *Draba corymbosa* and *Campanula groenlandica*, that are not or at any rate in this list are not considered different as to species from severally *Draba hirta* and *Campanula rotundifolia*, after which the number of known species is reduced to 113 species. In this list are mentioned 183 species, so that the number has been added to with 62 %, though the conception of species has been taken in a very wide sense. Thus I have with Gelert united *Draba rupestris* and *corymbosa* with *Draba hirta*, *Glyceria Borreri* with *G. distans*, *Festuca duriuscula* with *F. ovina*, *Campanula groenlandica* with *C. rotundifolia*, and *Woodsia ilvensis*, *glabella* and *hyperborea* are considered to be one species, while the *Alchimilla* forms *filicaulis, alpestris, Wichurae* and *glomerulans* are considered to be separate species. In spite of that the augmentation is very considerable, and though the number has not been increased to the double of it, as foretold by Warming, still Nathorst was very far from being right when he declared that, what might still be found would be only single "plantae rarae" of no importance for the flora as a whole. No less than 52 of the species added are plants of a wide distribution which within Greenland itself have been found in very different localities and bear a prominent part in the physiognomy of the vegetation[1], and even within the district given

[1] They are:

Dryas octopetala v. integrifolia.	Alsine verna.
Potentilla nivea.	Cochlearia officinalis
*Potentilla tridentata.	Draba alpina.
*Epilobium lactiflorum.	Draba aurea.
*Epilobium Hornemanni.	Draba nivalis

15 signed with * of these (or 10 % of the original number) are species giving the tone among the others.

The rest (17)[1] of the new found species must both within this district and on the whole in Greenland be characterized as rare plants, and finally one species, *Sedum acre*, has not formerly been found in Greenland. The knowledge of the flora of East Greenland has thus been augmented to a rather considerable degree. In a later work I shall examine more exactly the importance of this for the judgment of the phytogeography of the region.

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*Draba Fladnizensis.
Draba arctica.
Draba incana.
*Cardamine bellidifolia.
Cardamine pratensis.
Papaver radicatum.
*Ranunculus pygmaeus.
*Coptistrifolia
Sedum villosum.
Pedicularis lanata.
Mertensia maritima.
Pyrola rotundifolia v. grandiflora.
*Cassiope tetragona
Campanula uniflora.
Antennaria dioica.
Arnica alpina.
Rumex acetocella.
*Salix arctica v. groenlandica.
Habenaria albida.
Habenaria hyperborea.
Juncus castaneus.
Juncus arcticus.
Scirpus caespitosus.
Elyna Bellardi.
Carex capitata.
Carex microglochin.
Carex rupestris.
Carex brunescens.
Carex atrata.
Carex supina.
Carex rotundata.
*Carex pedata.
*Agrostis canina
Aira flexuosa.
Glyceria angustata.
*Glyceria distans.
*Lycopodium annotinum.
Equisetum variegatum.
*Equisetum arvense.
*Aspidium Dryopteris.
Aspidium Phegopteris.
Woodsia ilvensis.

[1]) They are:
Potentilla emarginata.
Alchimilla filicaulis.
Alchimilla alpestris.
Alchimilla Wichura.
Callitriche hamulata.
Draba crassifolia.
Ranunculus reptans.
Sagina caespitosa.
Saxifraga aizoides.
Gentiana tenella.
Galium palustre.
Hieracium dovrense.
Potomogeton filiformis.
Juncus triglumis.
Juncus bulbosus.
Lycopodium complanatum chamacyp.
Botrychium lanceolatum.

In arranging the plants I have followed Lange's "Conspectus Flora Groenlandica" (Meddelelser om Grönland III) by reason of the comparison with this fundamental work though it has become antiquated in several respects (f. inst. the maintenance of Apetalae as a special group). I have also followed the nomenclature of Lange as far as possible, and I have innovated only where newer works have necessitated my doing so. These innovations are greatest within the family *Cruciferae* where I have followed Gelert's revision for the genera *Draba* and *Cochlearia*, *Compositae*, determined by Amanuensis Dahlstedt in Stockholm, *Cyperaceae*, determined by Inspector of the Botanical Museum at Copenhagen, C. H. Ostenfeld, the other orders of Monocotyledones and *Filices*, where the limitation of the species stated in "Flora Arctica" has been followed. In several cases especially when determining the large genera I have not been content with the result obtained, but I have been obliged to stop at what I considered a preliminary position, as the systematising cannot be final, until the plants have been cultivated and observed continually through years in the arctic countries. There is now every prospect of this going to be done at the new established Danske Arktiske Station in Disco, and it is my hope that also systematic questions will be treated there.

In composing this list I have besides those cited in Lange's Conspectus p. XVI ff. employed the following works:

Berlin: Kärlväxter insamlade under den svenska Expeditionen til Grönland 1883. Öfversigt af Kungl. Vetenskaps-Akademiens Förhandlingar, No: 7, p. 17.

Engler und Prantl: Die natürlichen Pflanzenfamilien.

Gelert: Notes on arctic Plants. Botanisk Tidsskrift 21. Bd., 3. Hefte. København 1898.

— Studier over Slægten Batrachium. Botanisk Tidsskrift 19. Bd. p. 7. København 1894.

Gunnar Andersson & H. Hesselman: Bidrag till Kännedomen om Spetsbergens och Beeren Eilands Kärlväxtflora. Bihang t. K. Svenska Vet. Akad. Handl. Bd. 26. Afd. III. No: 1.

Hartz, N.: Fanerogamer og Karkryptogamer fra Nordøst-Grönland c. 75°—70° N. Br. og Angmagsalik c. 65° 40′ N. Br. Meddelelser om Grønland 18. Hefte.

Haussknecht: Monographie der Gattung Epilobium 1884.
Hegelmayer: Monographie d. Gattung Callitriche. Stuttgart 1864.
Lange, Joh.: Conspectus Florae Groenlandicae. Meddelelser om Grønland 3. Hefte. København 1890.
— Bemærkninger om de i 1883—85 indsamlede Planter paa Østkysten af Grønland. Medd. om Grønl. 9. Hefte. 1889, p. 271.
Nathorst, A. G.: Botaniska anteckningar från nordvestra Grönland. Öfversigt af Kungl. Vetenskaps-Akad. Förhandlingar 1884, No: 1.
— Fortsatta anmärkningar om den grönlandska vegetationens historia. Kgl. Vet.-Akad. Förhandl. 1891, No: 4.
Nordenskiöld: Den andra Dickson'ska Expeditionen till Grönland. Stockholm 1885.
Neuman: Sveriges Flora. Lund 1901.
Ostenfeld, C.: Flora Arctica. I. København 1902.
Rosenvinge, L. Kolderup: Andet Tillæg til Grønlands Fanerogamer og Karsporeplanter. Medd. om Grønl. 3. Hefte. København 1892.
Raunkiær, C.: De danske Blomsterplanters Naturhistorie 1.
— Dansk Excursions Flora. 1890.

I beg the many botanists who during the composing and else have assisted by word and deed to receive my best thanks. I shall name here Professor E. Warming, who always has assisted me, Professor Wittrock, Stockholm, who left the rich collections of the Rigsmuseum to my disposal, Amanuensis Dr. R. Fries, who assisted me at the named museum, Amanuensis Dahlstedt, who kindly determined the genera *Taraxacum* and *Hieracium*, Inspector of the museum at Copenhagen mag. sc. C. H. Ostenfeld, who determined *Cyperaceae* and mag. sc. C. Raunkiær, who determined *Juncus bulbosus*.

Randers, the 25th of March 1906.

Chr. Kruuse.

Fam. 1. Rosaceae.

1. **Dryas octopetala** L., var. **integrifolia** (M. Vahl) Hartz Fanerog. p. 320.

D. integrifolia Lge. Consp. Fl. Groenl. p. 3 & 234. Rosenv. Till. p. 654.

In table-land, rather rare, high up on the mountains and most often on the shady side, not observed below 300 m. above the level of the sea. In bloom from the 28th of June—24th of July, in fruit from the 13th of July.

Kap Wandel, Amagak in Sermilik, Kilikitak, Kakasuak and the westside of Kingorsuak, Tunok, Adloe, Anava, Kordlortok, Orsuluiak near Tasiusak 65° 35′ n. Br.

All specimens have entire leaves, as a rule closely convoluted; in favorable localities the young leaves are plane and obtain a length af about 10 mm. and a breadth of until 4 mm. In unfavourable (dry) localities all leaves are involuted and obtain only a length of 5—6 mm. and a breadth of 2 mm. The species does not flower every year and not until the tufts have reached a diameter of more than 5 ctm. The flowers are rather small (15—20 mm. in diameter) and shortstalked (the stalks 2—3, rarely 4 ctm.). The dust well developped. Sets, though rarely, well-developped fruit; old fruitstalks from a previous year are common. The tufts are very low, 1—2 ctm. thick, having rarely a diameter of 20 ctm.; older specimens are always dead in the middle and much lichenized. The species evidently thrives badly within the territory examined. Dryas octopetala L. has not been found anywhere.

2. **Potentilla palustris** (L.) Scop.

Lge. Consp. Fl. Groenl. p. 3 & 234. Comarum palustre Berlin Kärlv. p. 32. Hartz Fanerog. p. 391.

Rather rare; on the banks of brooks and lakes, and in pools. Flowers sparingly in August. The shoots are until 60 ctm. long.

Kingorsuak, Ikerasausak, Tunok, Kuarmiut, Tasiusak. Kong Oscars Havn (Berlin)!

3. **Potentilla anserina** L. *β groenlandica Ser.*

Lge. Consp. Fl. groenl. p. 5 & 234. Berlin Kärlv. p. 33.

Rather rare, on clayey and sandy flats on the beach.

Kingorsuak in several places, Ikerasausak, Tunok, Kordlortok and Grönlænderpynt at Tasiusak.

Is as a rule very low, compressed with 3—4 ctm. long leaves, with 2—3 couples of leaflets and abt. 20 ctm. long, 4—5 jointed offshoots, but in favourable localities vigorous specimens appear with 12 ctm. long leaves (5 couples of leaflets) and 50—60 ctm. long offshoots with 10—12 ctm. long joints. Flowers abundantly and sets many fruits. In spring the leaves are strongly reddish brown, later in the year they commonly assume a somewhat greenish colour. Flowers from the middle af July to the middle of August, with fruit in August.

4. **Potentilla maculata Pour.**

Lge. Consp. Fl. Groenl. p. 6 & 234. Berlin Kärlv. p. 33. Hartz Fanerog. p. 391.

α. vulgaris.

On herby slopes and in heath, rather common over the whole district.

Kong Oscars Havn (Berl.)!, Tasiusak (Bay.)!, Kap Wandel, Nigertusok, Smalsund, Kingorsuak, Ingmikertorajik, Akiliarisek, Kuarmiut, Tunok, Elvbakker a. sev. pl. at Tasiusak, Adloe, Kap Dan, Misutok.

β. hirta Lge.[1]) Falkefjæld at Kingorsuak, Kangerdluarsikajik.

[1]) There seems to me to be no reason of separating with Rydberg (Further studies on the *Potentilla*) this variety as a distinct species (*P. Langeana* Rydb.), as the characters referred to are very variable, and numerous transitions are found. In the same plant the outer calyx and the leaf denticles may be obtuse and acute, the sepals oval or oval-lanceolate, and even the hairiness of the upper surfaces of the leaves and the under calyx are very variable. Completely glabrous leaves are rare. Neither do these characters vary in a parallel way; in almost glabrous specimens (shade-loving forms) the stem is upright with upright branches, the leaf denticles obtuse, while outer calyx and calyx are lanceolate and more or less acute.

5. **Potentilla emarginata** Pursh.

Lge. Consp. Fl. Groenl. p. 8 & 235.

Found only in one place, Kakasuak at Kingorsuak, 66° 8′ lat. N. 2 small sterile specimens.

6. **Potentilla nivea** L.

Lge. Consp. F. Groenl. p. 8 & 235.

Found only in one place:

The west side of Kingorsuak, 66° 8′ lat. N., on a humid, shady rocky wall.

In the above named locality two 20 ctm. high flowering specimens, belonging to the main species, were found on the 27th of July. In spite of zealous searchings I did not succeed in finding the species anywhere else, so that it must at least be very rare here, though in West Greenland it grows far more towards the south.

7. **Potentilla tridentata** Soland.

Lge. Consp. Fl. Groenl. p. 10 & 236.

In table-land, on rocks, on herby slopes, rather rare, between 66° and 67° 5′ lat. N.

Kingorsuak, Ikerasausak, Akiliarisek.

The species prefers the interior of the country and thrives especially in cracks of the rocks where there is very dry some time of the year, but it has also been found on the outer coast in a few places. It is rather rare, but grows gregariously where it appears. Flowers in the latter half of July; fruit ripens in August; old fructifications are common.

8. **Sibbaldia procumbens** L.

Lge. Consp. Fl. Groenl. p. 11 & 236, Berlin Kärlväxter p. 34. Hartz Fanerog. p. 391.

Common on herby slopes and rocks of the table-land above the slopes. Flowers from the 20th of June—the 1st of Aug.; sets abundant fruit that remains throughout the winter; old empty fructifications are common. Forms often dense plantations of a height of abt. 5 ctm.

9. Alchimilla alpina L.

Lge. Consp. Fl. Groenl. p. 11 & 236. Berlin Kärlv. p. 34. Hartz Fanerog. p. 391.

Nigertusok, Akiliarisek, Kingorsuak, (Kangarsuk) (Knutsen), Jærn Ö, Kong Oscars Havn (Berl.), Tasiusak in several places.

Alchimilla vulgaris L.

Lge. Consp. Fl. Groenl. p. 11 & 236. Berlin Kärlv. p. 34. Hartz Fanerog. p. 391.

Of this polymorphic species several forms appear within the district; they are all well separated without any distinct transitions and seem to keep constant. The distinguishing characters are rather small, but in larger plantations it is possible to distinguish the individual sub-species by their peculiar structure.

I. The calyx hairy.

10. Alchimilla filicaulis (Buser).

The stems glabrous, at the top capillary like the branches of the inflorescence. The root-leaves plane with open basis, bluish grey, 7-lobed, the midlobe with 6—9 denticles on each side. The calyx infundibuliform or at the top oval-cylindric, hairy with scarce protruding hairs.

Not common; on herby slopes between 66° 19′ lat. N. and 65° 35′ lat. N.; 10—15, exceptionally 50 ctm. high. New for Greenland.

Akiliarisek, Kingorsuak, Tunok, Sarfakajik, at Kordlortok Sö, Elvbakker at Tasiusak, Adloe.

f. *vestita Buser*. Stems hairy; very rare, in herby slopes.

The tent place at Kingorsuak, Cassiope Fjæld, Amagâ and Elvbakker at Tasiusak.

II. The calyx glabrous.

† The lower half of the leaf nerves glabrous, the upper half adpressed hairy on the under side

11. Alchimilla alpestris (Schmidt).

The stems and the stalks of the root-leaves almost glabrous or downwards clothed with adpressed hairs. The leaves glabrous

(except the nerves). The denticles of the upper stem leaves are directed towards the point of the segment of the leaf.

On humid, well sheltered herby slopes, up to 50 ctm. high, found only in one place, and not before observed in Greenland.

Tasiusak, Misutok 66° lat. N.

†† The leaf nerves hairy in their whole length with adpressed shining hairs.

*The leaves glabrous on their upper surfaces (but often slightly hairy at the bottom of the incisions).

12. **Alchimilla Wichurae** (Buser).

The underside of the leaves adpressed hairy. Dark green, folded with sharp keels.

On humid well sheltered herby slopes with high snow cover in winter; rather rare between 66° 20′ and 65° 35′ lat. N.; 15—22 ctm. high. New for Greenland.

Kap Wandel, Nigertusok, Ikerasausak, Kuarmiut, Tasiusarsik Kitdlek, Nordfjord and Elvbakker at Tasiusak.

** The upper surface of the leaves hairy, at least along the edge.

13. **Alchimilla glomerulans** (Buser).

A. vulgaris f. subsericea Lge. Consp. Fl. Groenl. p. 237. A. vulg. Hartz Fanerog. p. 392. Berl. Kärlv. p. 34.

The most common form of the east coast; widely distributed on herby slopes and in copses of willows and found up to 1000 m. above the level of the sea; collected by all former travellers.

Kong Oscars Havn (Berlin, Bay), Kingorsuak (The name of Kangarsuk in Lange l. c. is due to a misreading). It has already been found on 63° lat. N. (Eberlin) south of Angmagsalik, but no other form of A. vulg. is found in the collections of the Bot. Mus. of Copenhagen.

Fam. 2. Halorhagidaceae.

14. **Hippuris vulgaris** L.

Lge. Consp. Fl. Groenl. p. 13. Rosenv. Till. p. 658. H. vulg. v. maritima Lge. l. c. 237. Berlin Kärlv. p. 36. Hartz Fanerog. p. 391.

In low watered ponds, rare.

Tasiusak (Bay.), Kong Oscars Havn (Berl.), ponds in Elvbakker and on Amakâ, Tunok.

The number of the leaves of the whorls varies from 4 to 11, the length of the air leaves is between 5 and 12 mm., the breadth 1,5—2 mm., the water leaves vary between 5 and 12 mm. (length) and 1,5—3 mm. (breadth), and these variations may appear together in the same specimen in all combinations. It is therefore impossible to distinguish between the main form and f. *maritima* (Hellen) Hartm. 20—50 ctm. high, with up to 1,3 m. long rhizomes creeping at a depth of 4—5 ctm. in sand and mud on ground covered with no other plants. The air shoots begin to appear early in June. Flowers though rarely in July. Sets ripe fruit. Seed plants with 5—6 ctm. long rhizomes and 1—4 strict 2—3 ctm. high shoots were observed on the 15th of August 1902.

Fam. 3. Callitrichaceae.

15. **Callitriche verna** Kütz.

Lge. Consp. Fl. Groenl. p. 14 & 238, Berlin Kärlväxter p. 37.

α. genuina. — Kordlortok.

β. minima (Hpp.).

Kong Oscars Havn (Berlin), ponds in Elvbakker and on Amakâ, Ingmikertok in Angmagsalik Fjord in a dried up pool on the camp, Ikerasak Fugleholme.

16. **Callitriche hamulata** Kütz., var. **trichophylla** Kütz.

In a pond with abt. 35 ctm. water on sandy and muddy ground. 3—10 ctm. high, with fruit on the 30th of Sept. 1901.

Found only in one place, Sparganium-Dam in Elvbakker at Tasiusak.

Fam. 4. Oenotheraceae.

17. **Epilobium anagallidifolium** Lam.

Haussk. Monographie p. 152, Rosenvinge Till. p. 659. E. alpinum. Lge. Consp. p. 14 & 238, Berlin Kärlväxter p. 35.

Nigertusok, Kangerdlugsuatsiak, Utorkarmiut, Ikatek, Sierak, Tasiusarsik in Angmagsalik Fjord, Tunok, Amagâ, at Kordlortok Sö, the brook of the colony, Kong Oscars Havn (Berlin).

Rare. Forms cover in spots in humid places as the banks of brooks, at the foot of black stripes, on herby slopes and in manured places. It is 2—5 ctm. high, but fructiferous specimens may exceptionally reach 11 ctm. Flowers in July, sets abundant fruit.

18. **Epilobium lactiflorum** Hausskn.

Lge. Consp. Fl. Groenl. p. 238.

Rare, on herby and grassy slopes exposed to the south with high snow cover in winter. 10—20 ctm. high, fructiferous up to 40 ctm. Flowers in July, sets abundant fruit.

Kangerdlugsuatsiak. Tunok, Sierak, Tasiusarsik in Angmagsalik Fjord, Sarfakajik.

19. **Epilobium Hornemanni** (Rchb.).

Hausskn. E. alsinefol. Lge. Consp. Fl. Groenl. p. 15 & 239.

On herby slopes, not common between 66° 10′ and 65° 35′ lat. N., snow covered in winter. Flowers July—August, sets abundant seed. 10—20, sometimes up to 50 ctm. high.

Kangerdluarsikajik, Ikatek, Kingorsuak, Sierak, Tunok, Sarfakajik, at Kordlortok Sö, Amagâ, Tasiusarsik in Angmagsalik Fjord.

20. **Chamaenerium angustifolium** (L.) Scop.

Lge. Consp. Fl. Groenl. p. 16 & 239, Berlin Kärlv. p. 35, Hartz Fanerog. p. 391.

Grows gregariously on herby slopes close to the foot of the rocks and in copses of willows, obtains commonly a height of 25—30 ctm., but is on the outer coast only 10, in the interior up to 70 ctm. high.

Between 66° 19′ and 65° 35′ lat. N.

Kangerdlugsuatsiak, Eskimo Ö, Kangerdluarsikajik, Kingorsuak, Ikerasausak, Akiliarisek, Ingmikertok, at Kordlortok Sö, Kuarmiut, Tasiusak (Kong Oscars Havn) Berl. Bay, common in Elvbakker.

f. *foliosa.* Hausskn. Monogr. p. 37.

Kingorsuak, Tasiusarsik in Angmagsalik Fjord, Amakâ at Kordlortok.

f. *ramosa.* Hausskn. l. c. p. 38. Amakâ at Kordlortok.

f. *stenophylla.* Hauskn. l. c. p. 38.

In sand at the foot of rocks in the neighbourbood of the trading station (Tasiusak).

21. **Chamaenerium latifolium** (L.) Spach.

Lge. Consp. Fl. Groenl. p. 16 & 239, Berlin Kärlv. p. 35. Hartz Fanerog. p. 391.

In table-land, heath and on herby slopes.

The following forms appear:

α. f. *platypetala* Hausskn. Monogr. p. 191.

Tasiusak (Berlin, Bay).

Commonly distributed between 66° 20′ and 65° 35′ lat. N. as well on the coast as in the interior on gravelly slopes, on humid sand along the banks of brooks etc.; until 30 ctm. high. Flowers from the middle of July till the middle of August, sets abundant fruit.

β. *stenopetala* Hausskn. l. c.

More rare than the main form, and in more favourable localities, herby slopes and humid sand.

Akiliarisek, Kingorsuak, Kangerdluarsikajik, Tunok, Kordlortok Sö, Amaga, Elvbakker, Tasiusak (Hartz).

γ. f. *brevifolia* Hausskn. l. c.

In shady places, in cracks.

Kordlortok, Kakasuak, Tunok.

δ. f. *venosa* Hausskn. l. c.

In humid shady localities.

The west side of Kingorsuak, Tasiusak, Amagâ.

The forms named her are not completely constant and transitions are often observed between all af them, but as they appear ecologically in a different manner I put them down here.

Fam. 5. Empetraceae.

22. **Empetrum nigrum** L.

Lge. Consp. Fl. Groenl. p. 181, Berlin Kärlväxter p. 60. Hartz Fanerog. p. 391.

Widely distributed everywhere in all formations; is found as well on the skerries farthest out in the sea, as in the interior on the border of the inland ice and on the highest ascended tops. Forms cover of a height of up to 20 ctm.; flowers late in June, sets abundant and ripe fruit, but only in favourable localities; many fruits do not attain ripeness and remain throughout the winter, they dry up next spring.

Fam. 6. Caryophyllaceae.

23. **Silene acaulis** L.

Lge. Consp. Fl. Groenl. p. 19 & 241. Berlin Kärlväxter p. 28, Hartz Fanerog. p. 391.

Common on gravelled and sandy ground in table-land and heath, especially on sloping ground, avoiding humid and occasionally inundated places, is often snowless in winter, werefore older tufts often die off at the top or become eroded from the NE. side in the form of a horse-shoe. The tufts become up to 40 ctm. in diameter and 10 ctm. high, but are usually not more than severally 20 and 5 ctm., on lichen flats only 2—3 ctm. broad and 1 ctm. high. The tufts flower every year, 15th of June—15th of August, but only with a slight number of flowers; the flowers are first reddish purple, later pink, and towards fading almost white; really white flowered tufts are very rare. Sets in August abundant seed having the power of germination. Seedlings and young specimens are common. In cracks of rocks a sterile shade-loving form with stretched joints very usually appears.

24. **Viscaria alpina** (L.) Don.

Lge. Consp. Fl. Groenl. p. 19 & 241. Berlin Kärlv. p. 28.

Widely distributed in table-land, heath and on slopes, but grows always spread and is but a secondary constituent part of the vegetation. The height is 5—20 ctm.; it is sometimes branched and often 3—5 peduncles shoot out from the same zhizome; the inflorescences are 2—4 ctm. long, compact. The number of the lobes of the corolla is very variable, also the colour, from deep crimson to light shades, and towards decay the colour fades a great deal.

β. albiflora. — Elvbakker at Tasiusak.

γ. pleniflora. — Kong Oscars Havn (Berlin)! Elvbakker.

25. **Sagina Linnaci** Presl.

Lge. Consp. Fl. Groenl. p. 21 & 242. Berlin Kärlv. p. 31.

Not common, in humid places (not in pools), on herby slopes, in table-land and on oozy and stony flats, forms sometimes cover over smaller spots. Up to 5 ctm. high in shady places, for instance among carices and grass, but as a rule only 1—2 ctm. The tufts manystemmed, richly flowering (1 tuft bore 257 flowers and fruits); sets abundant seed, having the power of germination, in August.

Kakausak at Kingorsuak, Sierak, Tunok, Sarfakajik, Kordlortok Sö, Tasiusak, Kong Oscars Havn (Berl.)!

26. **Sagina nivalis** L.

Lge. Consp. Fl. Groenl. p. 22 & 242. Berlin Kärlv. p. 31.

On stony plains and in gravelled and sandy places with scarce vegetation. Not common.

Grus Ö, Kingorsuak on a "cone of debris" in a river, Amagak in Sermilik, Tunok, Ingmikertok, Sarfakajik, Elvbakker, Tasiusak, Grönlænderpynt, Kong Oscars Havn (Berl.)!

27. **Sagina caespitosa** (J. Vahl) Lge.

Lge. Consp. Fl. Groenl. p. 22 & 242.

Very rare; in gravelled and sandy places near the beach.

Sten Ö, Tunok, Adloe at Kap Dan, Grönlænderpynt in Tasiusak.

28. **Alsine biflora** (L.) Wbg.

Lge. Consp. Fl. Groenl. p. 23 & 243. Berlin Kärlv. p. 30.

Widely distributed everywhere on herby slopes and in table-land. The tufts up to 30 ctm. in diameter and with 5 ctm. high flowerstalks, but most often smaller, 5—10 ctm. in diameter. Very richly flowering (a tuft of a diameter of 15 ctm. bore 531 flowers and fruits); even small delicate globular specimens of a diameter of 1—2 ctm. bear numerous flowers. Sets abundant and ripe fruit.

The flowers are nearly always white, only exceptionally a reddish purple specimen is found. Shade-loving specimens with stretched joints are always sterile.

29. **Alsine verna** Bartl.

Lge. Consp. Fl. Groenl. p. 24 & 243.

Appears in the following forms.

β. rubella (Wbg.).

Kilikitak at Kingorsuak, Anava and Adloe at Kap Dan.

γ. hirta Wormsk.

Kap Wandel, Kakasuak and Falkefjæld at Kingorsuak, Sarfakajik, Kilitilik at Tasiusak.

δ. propinqua (Richards).

Nigertusok, Kilikitak and Falkefjæld at Kingorsuak.

30. **Honckenya peploides** (L.) Ehrh.

Halianthus peploides (L.) Fr. Lge. Consp. Fl. Groenl. p. 26 & 243. Berlin Kärlväxter p. 30.

Kordlortok at Tasiusak.

a. diffusa Horn.

Here and there on the beach and in gravelled places near the sea. Flowers in the latter half of June, sets scarce fruit in August. The tufts may be up to 1 □-mt., but not more than 2—3 ctm. high and incoherent; only exceptionally, and particular in the inner part of the inlets, more than one specimen is found in each locality.

Kingorsuak in several places, Kingak, Sierak, Tunok, Grönlænderpynt in Tasiusak, Kong Oscars Havn (Berl.)!

31. **Stellaria borealis** Big. var. **calycantha** Bong.

Lge. Consp. Fl. Groenl. p. 28 & 244. Berlin Kärlv. p. 30.

Very rare. On herby slopes and in copses; also in humid shady cracks of rocks in sheltered places in the interior; always snowcovered in winter. Flowers in August. Fruit not observed. 10—15 ctm. high, forms as a rule incoherent, soft, but closely entangled tufts, but in the high dense copse of willows near Kingorsuak it was found only with single or at most 3 ascending, thin, up to 40 ctm. high shoots.

Kingorsuak, the birds' islet near Misutok, Tasiusarsik in Angmagsalik Fjord, Kuarmiut, Elvbakker near Tasiusak, Kong Oscars Havn (Berl.). Northern limit 66° 8′.

32. **Stellaria humifusa** Rottb.

Lge. Consp. Fl. Groenl. p. 28 & 244. Berlin Kärlv. p. 30.

Not common; on the beach and in birds' islets. The tufts are as a rule small (diameter of up to 5 ctm.) with very short and short jointed stems creeping closely to the ground, but in manured places and in good shelter they may become up to 30 ctm. in diameter. In shade of rocks or algae washed ashore it becomes stretched stem joints (until 3 ctm.) and large leaves (until 12 mm.); but on sand and oozy flats it is utterly small-leaved. Flowers rather sparingly in July, sets ripe fruit.

Tunok, Kingorsuak, birds' islet near Misutok, Sierak, Ikatek, Ikerasausak, Ingmikertorajik, Kingâk, Tasiusak in several places, Kong Oscars Havn (Berl.)!

33. **Cerastium trigynum** Vill.

Lge. Consp. Fl. Groenl. p. 30 & 244. Berlin Kärlväxter p. 30. Hartz Fanerog. p. 391.

Widely distributed in humid places, as well on the coast as in the interior and high up in the mountains, but thrives best on the coast and is fond of the manured spots round Greenland tent and dwelling places, where it often forms a dense cover and colours the ground white with its numerous flowers (diameter of until 15 mm.); sets abundant ripe fruit.

var. *brachypetala* Lge. petalis calyce aequilongis.

Kingorsuak (Kangarsik) (Knutsen).

34. **Cerastium alpinum** L.

Lge. Consp. Fl. Groenl. p. 31 & 245. Berlin Kärlväxter p. 29. Hartz Fanerog. p. 391.

The following forms appear:

a. legitimum Lindbl.

Rather rare on herby slopes and in copses of willows.

Kingorsuak, Kingak Angmagsivik, Tunok, Kuarmiut at Kordlortok Sö and Elvbakker near Tasiusak, Anava.

β. lanatum Lindbl.

Kong Oscars Havn (Berlin! Bay!). Widely distributed in table-land. Attains in exposed habitat rarely a height of more than 5 ctm.; but in sheltered and fertile (manured) places it may attain 27 ctm. In copses and in shady cracks of rocks it may, as observed by Berlin (l. c.) in South Greenland, become very stretched jointed and assume the habit of *Cerastium alpestre*.

γ. procerum Lge.

In copses of willows and on herby slopes; also on manured ground, up to 35 ctm. high.

At Kordlortok Sö, Elvbakker, round the trading station at Tasiusak.

All forms vary a great deal as regards the length of the corolla, that in proportion to the calyx may be between 5:2 and 1:2.

Fam. 7. Violaceae.

35. Viola palustris L.

Lge. Consp. Fl. Groenl. p. 33 & 246. Berlin Kärlväxter p. 27, Hartz Fanerog. 391.

On herby slopes, grassy slopes and on the banks of brooklets and ponds, rare, 5—15 ctm. high.

Tunok, Kordlortok Sö; the specimens are sterile and small-leaved. Elvbakker and near the trading station in humid hollows covered with Salix herbacea; Sarfakajik, Subularia-Dam, between grassy tufts, Kong Oscars Havn (Berl.)!

It flowers late in July till the middle of the August and has late in August often numerous fully ripened fruits. Cleistogamic flowers appear more often than the great ones.

Fam. 8. Cruciferae.

36. Cochlearia officinalis L.

Gelert: G. Andersson & H. Hesselman Bidr. t. Spetsbergens och Beeren Eilands Kärlväxtflora, Bih. t. K. Sv. Vetensk. Akad. Handl. Bd. 26. Afd. III. Nr. 1. p. 34. C. groenlandica L. Lge.

Consp. Fl. Groenl. p. 35 & 246, C. fenestrata R. Br. Verm. Schr. Lge. l. c.

β. *groenlandica* (L.) Gel. l. c.

On the beach and on birds' tufts and birds' islets, rare.

Kingak, Ikerasausak.

f. *minor* Lge.

On birds' islets and near the beach, rare.

Sten Ö, Kingorsuak, birds' islet near Misutok, Ingmikertorajik, Anava, Tasiusarsik.

γ. *oblongifolia* (D. C.) Gel.

In manured places, on the border of sea-weed at the beach, rare.

Kingak, Ingmikertok, Sierak, Tunok, Aluit near Kap Dan.

Flowers in June—July, often immensely richly (tufts of a height of 3—4 ctm. and the same diameter may have more than 100 flowers), sets abundant ripe fruit. The species prefers manured places near the beach and may here attain a height of until 20 ctm., but appears never in greater numbers of specimens, certainly owing to the scarce bird life.

37. Draba alpina L.

Gelert: Notes on arctic plants. Lge. Consp. Fl. Groenl. p. 371.

Very rare; in table-land, 4—5 ctm. high, flowers from 20th—30th June.

Ikerasausak, Kingorsuak.

f. *algida* (Adams) Gel. l. c.

Kingorsuak, Ikerasausak, Tasiusarsik in Angmagsalik Fjord, Kuarmiut.

Yellowflowered *Drabas* are very rare within the district examined, and the colour is somewhat paler than farther north (Jaune 3; Lacouture, Répertoire Chromatique, Planche VI) but still unmistakable and can by no means be mistaken for any of the whiteflowered ones. The yellowish colour appearing in *Draba Fladnizensis* and *hirta* is secondary (Gelert l. c.), produced by preparation and drying. In nature I never saw any such shade of colour, not even an attempt of it. The species flowers sparingly and sets seed only in slight quantities; on the whole it thrives badly within the district

examined, certainly on account of the southern position. The southern limit is 66° lat. N.

38. **Draba crassifolia** Grah.

Lge. Consp. Fl. Groenl. p. 38.

On herby slopes. In bloom on the 26th and 27th of July, 2—4 cmt. high with old siliques from the previous year; grows gregariously in humid cracks and on the vertical shady side of small grass-walls.

Found only near Kingorsuak on Kakasuak and on the westside of the inlet.

39. **Draba aurea** M. Vahl.

Lge. Consp. Fl. Groenl. p. 39 & 247.

In table-land preferring gravelly places where there is plenty of water in spring, for instance in wild brooks and among blocks of stone on the sunny side (at a height of 500—700 mt.). Becomes 5—15 ctm., exceptionally 30 ctm. high with 1—4 flowering stems. The leaves in spring reddish purple. Flowers richly late in June and in the middle of July, sets abundant seed, having the power of germination, in August. Rare, but where it is found there are often numerous specimens on a small area. Avoids the outer coast.

Kakasuak near Kingorsuak, Akiliarisek, Ikerasausak.

40. **Draba nivalis** Liljeb.

Lge. Consp. Fl. Groenl. p. 39 & 248.

On rocks, in table-land, rare, 3—8 ctm. high. Flowers from 20th June, in fruit from 1th August.

Kap Wandel, Kingorsuak, Misutok, Tasiusak near the station, Adloe near Kap Dan.

f. *tenella* Lge. (f. elongata Wats.).

Kingorsuak on the westside.

41. **Draba Fladnizensis** Wulf.

Gelert Notes on arctic plants p. 302. D. Wahlenbergii Hartm. Lge. Consp. Fl. Groenl. p. 40 & 248.

Rather common in all formations, as well in the coast region as in the interior. Flowers from the middle of June till the middle

of August, sets abundant ripe fruit in August. Thickly tufted, most often manystemmed; 3—15 ctm. high, as a rule.

f. *homotricha* Lindbl. — Kuarmiut.

42. **Draba hirta** L.

Lge. Consp. Fl. Groenl. p. 42, Berlin Kärlväxter p. 24. Dr. corymbosa Berl. l. c.

Commonly distributed in all formations, 2—20 ctm. high, flowers from the 20th of June till October, sets abundant ripe fruit. Varies very much. Most common are forms belonging to *D. rupestris* R. Br., but also specimens belonging to the main form are common in sheltered localities; when growing in much exposed habitat, it is reduced to a minimal size (f. *stricta*, f. *trichella*), but it becomes very robust on manured ground with broad dentate leaves and a thick stem. The hairiness varies very much from the thick hairy small forms to almost glabrous. The form and hairiness of the silique is likewise subject to great variations. After having examined the great material at my disposal, I do not, however, consider it possible to keep the individual forms from each other, and therefore I do not note them down. The species is, like the genus of *Draba* on the whole, certainly strongly developping, and possibly forming new species; but these cannot be determined till after having been cultivated through years in favourable localities within the arctic circle. I consider the different forms only climatic and local varieties of one or few fundamental forms.

43. **Draba arctica** J. Wahl.

Lge. Consp. Fl. Groenl. p. 43 & 249.

Kingorsuak on the west side in shade, Kingak Angmagsivik, Sarfakajik.

44. **Draba incana** L.

Lge. Const. Fl. Groenl. p. 44 & 249.

Variat:

f. *confusa* Ehrh.

silicula stellato-puberula non contorta, foliis caulinis dentatis. C. 5 ctm. alt.

Tunok, Ikerasausak.

f. *contorta* Ehrh.

silicula glabra contorta, foliis omnibus integerrimis (vel caulinis rarius unidentalis). C. 15 ctm. alt.

Akiliarisek.

These two forms are constant in the material before me, but they cannot be kept from each other in the remaining arctic material accessible. All transitions are on the contrary found here.

***Brassica campestris** L.

Introduced with food for hens. Was found in great quantities round the landing place of the trading station and grew in a mixture of mould and barley corn. Flowered richly in July—August. Seeds not observed.

***Sinapis arvensis** L.

Introduced with food for hens. Was found in several places near the colony, partly in kitchen-middens, partly at the landing place, but single specimens were also seen on original soil and attained there a height of 40 ctm. Flowered richly in July—August. Seed not observed.

45. Subularia aquatica L.

Lge. Consp. Fl. Groenl. p. 250, Berlin Kärlväxter p. 26.

In ponds on sandy ground covered with a layer of mud, 1 ctm. thick, is found both submerse and on dried up ground, the largest depth of the water is 40 ctm. It flowers in the middle of August. Developped flowers were not taken but above the water; all submerse specimens had buds, but no open flowers. Fruit was found in abundance on the 10th—the 15th of August, the seeds ripe. The specimens grow gregariously in great numbers, but still with large intervals, forming no cover. They are 1—1,5 ctm. high with 3—5 strict leaves, 4—7 mm., exceptionally 15 mm. long; the peduncles are bent down, the bear 1—3 flowers, of which as a rule only the oldest one (the lowest) sets fruit. The white petals are also found in the submerse specimens. The siliques 1,5—2,8 mm. long, c. 1,5—2 mm. broad, 1—1,5 mm. thick with up to 6 light brown seeds.

Found only near Tasiusak.

Pond at Elvbakker abt. 100 mt. above the level of the sea. Pond in Amakâ abt. 3 mt. above the level of the sea. Kong Oscars Havn near the beach (Berlin)!

46. Cardamine bellidifolia L.

Lge. Consp. Fl. Groenl. p. 47 & 251.

In table-land, 1—5 ctm. high with many stems: flowers in July, sets abundant ripe fruit. In shady cracks the tufts become very incoherent, the leaves large with long stalks and the flowers rare. Not common, but found as well near the sea as in the interior, more frequent above than below a height of 300 mt.

Kap Wandel, Grus Ö, Kingorsuak in several places, Sierak, Kordlortok and Amagâ near Tasiusak.

47. Cardamine pratensis L.

Lge. Consp. Fl. Groenl. p. 48 & 251.

Very rare; in the edge of brooklets and in low ponds, as well submerse as on the dried up ground. The leaves are 2—5, exceptionally 8 ctm. long with 3—6 couples of leaflets; these are broadly oval (f. *angustifolia* Hook. Fl. boreal. Am. I. p. 45 has not been found). All specimens, even a very great one are sterile, not even peduncle is indicated. It propagates by prolific germs on the leaflets. These loosen themselves from the plant, fold or roll themselves together against the upper surface of the leaf, and the germ appears at the ground of it; still, I have seen a few with the germ in the middle of the upper surface of the midrib. Roots shoot out in a number of 1—6 on the under side of the germ. Especially the end leaflets seem to be particularly disposed to the formation of germs, but I have also observed them on the side leaflets. The formation of germs does not take place, till after the leaf has loosened itself from the mother-plant.

Pool near Kordlortok Sö, ponds and dry pools in Elvbakker and in the colony brook between the houses.

48. Arabis alpina L.

Lge. Consp. Fl. Groenl. p. 48 & 251, Berlin Kärlväxter p. 23, Hartz Fanerog. p. 392.

Widely distributed on herby slopes, on rocks, in fertile places in the heath etc. It flowers from the 15th of June—the 15th of August, with fruit in August, sets abundant ripe seed.

β. glabrata A. Bl. Norg. Fl.

In copses of willows. — Kingorsuak.

γ. minor Lge. Consp. Fl. Groenl. p. 252.

In table-land high up in the mountains (above 500 mt.); is a very stunted form belonging to the East coast.

Kakasuak and Cassiope Fjæld near Kingorsuak, Kordlortok Fjæld and Sömands Fjæld near Tasiusak.

δ. ruderalis Wormskj. Lge. Consp. Fl. Groenl. p. 251.

On tent places, house ruins, kitchen-middens etc. Is a luxuriant form produced by abundant nutriment.

Kingak Angmagsivik.

Fam. 9. Papaveraceae.

49. **Papaver radicatum** Rottb.

P. nudicaule. Lge. Consp. Fl. Groenl. p. 52 & 253.

In table-land on the shady side, high up in the mountains (above 500 mt.). 5 specimens were found, among which a large old one with 37 fruits and flowers on 20 ctm. high peduncles; the others were small flowered. The flowers yellow, dust well developped; seed was found but not ripe; still several old capsules indicate that it may be found. With flower on the 27^{th}—28^{th} of July.

The westside of Kingorsuak, Cassiope Fjæld 66° 10′—8′ n. Br.

Fam. 10. Ranunculaceae.

50. **Thalictrum alpinum** L.

Lge. Consp. Fl. Groenl. p. 53 & 253, Berlin Kärlväxter p. 19. Hartz Fanerog. p. 392.

On herby slopes and in copses of willows, not rare, grows often gregariously covering spots of $^1/_2$ □ mt., but is only of slight importance to the appearance of the vegetation, being mostly hidden by higher plants in whose shade it thrives best. It is 10—12, exceptionally 20 ctm. high with 3—5, exceptionally 10 ctm. long leaves. Flowers richly from the 20^{th} of June to the 1^{st} of August, pollen rich, normal. Sets fruit, but to a slight degree, ripe seeds not observed.

Kap Wandel, Nigertusok, Kangerdlugsuatsiak, Kingorsuak, Akiliarisek, Tunok, Kuarmiut, Misutok, Elvbakker, Tasiusak (Bay), Kong Oscars Havn (Berlin)!

51. **Batrachium paucistamineum** (Tausch.) var. **eradicata** (Læstad.).

Gelert: Bot. Tidsskr. Bd. 19, p. 28. Hartz Fanerog. p. 392. Ranunc. confervoides Fr. Lge. Consp. Fl. Groenl. p. 54 & 253.

In a pond with c. 40 ctm. deep water on sandy ground covered with a mudlayer abt. 1 ctm. thick numerous 5—15 ctm. high specimens were found. The lobes of the leaves 1,5—2 ctm.; with one (two) flowers; 5—7 mm. in diameter, pollen well developped, sets abundant ripe fruit. A few specimens with very short (4 mm.) thick lobes were found in a dried up place in the pond, evidently a form of drought.

Pond in Amakâ near Kordlortok, Tasiusak (Bay.)!

52. **Ranunculus glacialis** L.

Lge. Consp. Fl. Groenl. p. 54 & 254, Berlin Kärlväxter p. 19. Hartz Fanerog. p. 392.

Widely distributed in table-land, especially on the coast and on the shady side of the mountains in the interior. 5—15 ctm. high. Flowers from the 10th of June—the 1st of August; the flowers 15—30 mm. in diameter, first reddish purple-brownish red, later on red and at last white and widely open. Sets rich ripe fruit in August. The seeds well developped. The plant is fond of humidity and is often found on dripping wet ground on the border of snow drifts. It begins flowering already 2—3 days after having become snowless.

Kong Oscars Havn (Berlin)! Tasiusak (Bay.)!

53. **Ranunculus pygmaeus** Wahlbg.

Lge. Const. Fl. Groenl. p. 55 & 254.

Widely distributed in humid cold shady places as well on the coast as in the interior, but is most often found on the shady side of the mountains and along perennial snow-drifts. This explains that neither Berlin nor Bay has collected it.

1—12 ctm. high. Flowers from the 15th of June, with fruit from the 10th of July; fruit rich, ripe.

var. *Langeana* Nathorst. Öfvers. af Kgl. Vetensk.-Akad. Förhandl. 1884, No: 1, p. 47.

Kingorsuak the west side.

54. **Ranunculus hyperboreus** Rottb.

Lge. Consp. Fl. Groenl. p. 55 & 254, Berlin Kärlväxter p. 21.

Very rare; in pools. 10—20 ctm. long; the leaves 5—8 mm. broad, 1 at most 2 flowers. Sets ripe fruit. It flowers from the 25th of June; with fruit in August.

Eskimo Ö, Ikerasak Fugleholme, Tasiusarsik, Amakâ and Elvbakker in Tasiusak, Kong Oscars Havn (Berlin)!

v. *ruderalis.*

Coarse, branched, rooting off-shoots shoot out from a little tuft with many leaves. The joints of the stems 2—3 ctm. long. The leaves coarse, 1—2,5 ctm. broad on 2 ctm. long stalks; the peduncles 1—3 ctm. long, the calyx trisepalous, half as long as the tetrapetalous corolla. Stamens and fruit well developped.

The plant is in all parts coarser and shorter than the main species. It must be considered a luxuriant form produced by abundant nutriment and want of water. It bears a certain superficial resemblance to *R. pygmæus.*

Kingak Angmagsivik in a few small half dried up pools on the kitchen-midden.

55. **Ranunculus reptans** L.

Lge. Consp. Fl. Groenl. p. 57.

In a dried up pond on gravelly ground, where the water in winter is abt. 30 ctm. high. Formed a complete, but open cover over some hundred □ mt. The tufts have 1—3 off-shoots with 3—5 ctm. long joints. The leaves are abt. 2 (exceptionally 4—5) ctm. long, at the point 1 (exceptionally 3) mm. broad. The peduncles 5 (1—6) ctm. long, upright. The flowers, 1—4 in each specimen, abt. 5 mm. broad, well developped, sets ripe fruit. The whole plant is reddish brown.

Amakâ near Kordlortok at Tasiusak abt. 3 mt. above the sea.

56. **Ranunculus acer** L.

Lge. Consp. Fl. Groenl. p. 58 & 255, Berlin Kärlväxter p. 19.

On herby slopes; rare, 30—40 ctm., in very favourable places up to 70 ctm. high; the ground-leaves most often long-stalked (stalks of 15—35 ctm.); the lower stem-leaf short-stalked (1—4 ctm.); the upper one sessile; all leaves hispid. The stem branched at the top, 2-many flowered. The flowers up to 26 mm. in diameter, pollen well developped. Sets abundant ripe fruit.

Tunok, Kordlortok Sö at the foot of a hill, Amagâ, Elvbakker near Tasiusak, Kong Oscars Havn (Berlin)!

var. *Nathorstii* Berlin l. c. p. 20.

On herby slopes; rare.

15—40 ctm. high; with few flowers, the ground-leaves long-scaped, all leaves bi- or tripartite, the segments trilobate, the lobes linear with parallel edges. The segments of the lowest stem-leaf of 1st and 2nd order often stalked and the lobes very long. The whole plant especially towards the top hispid; the hairs compressed and widely separated. Easily recognizable on account of the finely divided leaves; still, distinct forms of transition to the main species are found; some specimens taken late in autumn agree best with the description of Berlin.

Slope on Amagâ, the south side of Kordlortok Fjæld, Kong Oscars Havn (Berlin)!

fl. *pleni.*

The south side of Kordlortok Fjæld near Tasiusak.

57. **Coptis trifolia** Salisb.

Lge. Consp. Fl. Groenl. p. 58 & 255.

On herby slopes and in fertile heath, rather common. 5—10 ctm. high, flowers from the the 25th of June to the 1st of August, with fruit in August; the fructification is not common and takes scarcely place every year. Fruit well developped.

Nigertusok, Kangerdlugsuatsiak, Kangerdluarsikajik, Kingorsuak, Akiliarisek, Ikerasausak, Misutok, Tunok, Norsit, Tasiusak.

Fam. 11. Saxifragaceae.

58. **Saxifraga nivalis** L.

Lge. Consp. Fl. Groenl. p. 59 & 256, Berlin Kärlväxter p. 39, Hartz Fanerog. p. 392.

In heath and table-land and on steep rocks, common especially on the shady side of the rocks.

5—20 ctm. high, often with many stems or several specimens closely together. It flowers from late in June till the middle of July, sets abundant ripe fruit.

Kap Wandel, Kangerdlugsuatsiak, Kingorsuak, Akiliarisek, Kuarmiut, Ingmikertok, Tasiusarsik, Elvbakker, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

var. *tenuior* Wahlenb.

Rather common in humid and cold places near snow-drifts and brooks.

Kingorsuak, Akiliarisek, Ikerasausak, Sierak, Tunok, Kordlortok.

59. **Saxifraga stellaris** L.

Lge. Consp. Fl. Groenl. p. 60 & 256, Berlin Kärlväxter p. 39, Hartz Fanerog. p. 392.

On sandy and gravelled, humid ground, not common.

2—10 ctm. high, thickly tufted, with many stems; the cymes up to 6-flowered; the diameter of the flowers 5—10 mm., pollen well developped, the capsules shining red or reddish brown. Sets abundant ripe fruit[1]).

Kangerdlugsuatsiak, Kingorsuak, Ikerasausak, Tunok, Tasiusarsik in Angmagsalik Fjord, Sierak, Elvbakker, Grönlænderpynt and Nord-Fjord near Tasiusak, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

var. *acaulis.*

Thickly tufted, low, each rosette with one sessile flower. In dried up pools, submerse during the greatest part of the year.

Ponds on Amaga near Tasiusak.

var. *laxa.*

The stems undivided, ascending with stretched joints, the leaves

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[1]) The form comosa does not appear within the district.

lanceolate-spatulate, few-dentated, almost entire. The flowers small, 3—4 in cluster.

In a thick shady copse of willows near Kingorsuak.

var. *viridis.* The leaves small; the fruits green.

Elvbakker near Tasiusak on humid sand.

60. Saxifraga cernua L.

Lge. Consp. Fl. Groenl. p. 61 & 256, Berlin Kärlväxter p. 38.

On herby and grassy slopes and in table-land and on rocks 10—20 ctm. high. The flower 10—12 mm. wide. Commonly distributed in the whole of the district.

Kong Oscars Havn (Berlin)!

var. *ramosa* Gmel.

15—30 ctm. high, vigorous, with many axillary bulbs at the ground and in the inflorescence.

Rather rare and only in the interior.

Kingorsuak on the west side and Kakasuak, Kingak Angmagsivik.

61. Saxifraga rivularis L.

Lge. Consp. Fl. Groenl. p. 61 & 256, Berlin Kärlväxter p. 39, Hartz Fanerog. p. 392.

On humid moss in brooks and on rocks; rather common.

Kap Wandel, Sten Ö, Smalsund, Kingak Angmagsivik, Sierak, Norsit and Aluit at Kap Dan, Anava, Tasiusak in several places, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

β. hyperborea (R. Br.) Engl. Monogr. Saxifr. p. 105.

In humid and cold places, especially at the foot of perennial snow-drifts, rare.

The west side of Kingorsuak.

γ. purpurascens Lge.

Rare, in similar places as the main species.

The westside of Kingorsuak on a house ruin.

62. Saxifraga decipiens Ehrh.

Lge. Consp. Fl. Groenl. p. 62 & 257, Berlin Kärlväxter p. 38, Hartz Fanerog. p. 392.

α. groenlandica (L.) Lge.

Common on herby slopes, in heath, table-land and especially on rocks. 5—10 ctm. high, thickly tufted, with many stems. Flowers numerous, well developped. In bloom from the 10th of June; sets abundant ripe fruit.

Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

β. Sternbergii (Willd.) Engl. Monograph. Saxifr. p. 188.

Here and there in shady cracks of the rocks.

Kingorsuak, Akiliarisek, Kingak Angmagsivik, Tasiusarsik in Angmagsalik Fjord, Tasiusak.

γ. purpurascens. — The leaves of the corol reddish purple. Kingak Angmagsivik on a house ruin.

63. Saxifraga aizoides L.

Lge. Consp. Fl. Groenl. p. 64 & 257.

On the banks of small brooks and on humid rocks; 100—600 m. above the sea; rare. 4—5 ctm. high; incoherently tufted, reddish brown. Flowers from the 15th of July—the 15th of August. The flowers well developped; sets comparatively rare fruit (ripe fruit not observed, and only few old fructifications).

Kingorsuak, Tunok, Ikerasak, Sarfakajik, Kordlortok at Tasiusak.

64. Saxifraga Aizoon L.

Lge. Consp. Fl. Groenl. p. 65 & 257, Berlin Kärlväxter p. 38, Hartz Fanerog. p. 392.

Here and there on steep rocks. 5—10 ctm. high. Flowers in July, sets (though rarely) ripe fruit.

Kap Wandel, Nigertusok, Kangerdluarsikajik, Kingorsuak, Akiliarisek, Ikerasausak, Tunok, Amagâ, Kordlortok, Sarfakajik, Elvbakker, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

β. robusta Engl. Monogr. Saxifrag. p. 244.

25 ctm. high, the leaves 1—3 ctm. long, 5 mm. broad, in bloom on the 25th of July, on fertile sunny rocky steps and at the foot of rookeries.

Kakasuak and Falkefjæld near Kingorsuak.

65. Saxifraga oppositifolia L.

Lge. Consp. Fl. Groenl. p. 66 & 257, Berlin Kärlväxter p. 38.

Widely distributed in all formations as well along the coast as in the interior. Still the specimens rarely attain a considerable greatness (stems of a length of 35 ctm. are rare) and most of them are very small. Tufts of a diameter of 1—6 ctm. are most frequent. It flowers from the 15th of May till the middle of June, but delayed flowers are found. Even minimal tufts of a diameter of 5 mm. or creeping specimens of the length of 1 ctm. bear 1—2 flowers, that are often covered with snow or are exposed to ÷ 4 —5° C. without interrupting the flowering. Fruit is found already in the first week of June, and the seeds are most often spread before the end of June. The two forms mentioned by G. Andersson and H. Hesselman (Bidrag t. Kännedomen om Spetsbergen o. Beeren Eilands Kärlväxtflora. Bih. t. K. Sv. Vet.-Akad. Handl. Bd. 26. Afd. III. No: I, p. 23), f. *reptans* and f. *pulvinata*, with numerous forms of transition are found almost equally frequently within the district, in the way, that f. reptans is preferably found in steep and sloping places and very humid localities, and f. pulvinata prefers plane field and such localities where the soil during some time of the summer is totally dried up. Both of them belong to the most common plants on areas of sand-drift, especially where the sand-grains are large (— 1 ctm. diameter); and they are often so totally covered, that nothing but the flower rises above the sand, but this does not apparently seem to hurt them.

Fam. 12. Crassulaceae.

66. **Sedum Rhodiola** D. C.

Lge. Consp. Fl. Groenl. p. 67 & 258, Hartz Fanerog. p. 392, Rhodiola rosea L. Berlin Kärlväxter p. 37.

Rather commonly distributed on herby slopes, on steep rocks, steps and in fertile heath, but nowhere numerous and bearing but a slight part of the vegetation. 20—30 ctm. high; flowers from the 10th of June til August, sets abundant fruit, hermaphroditic flowers were not observed.

Kap Wandel, Nigertusok, Kangerdlugsuatsiak, Sten Ö, Moræne Ö, Grus Ö, Kangerdluarsikajik, Sarfak, Kingorsuak, Amagâ Sermilik, Ikerasausak, Tunok, Anava and Aluit near Kap Dan, common near Tasiusak, Kong Oscars Havn (Berlin)!, Tasiusak (Bay)!

67. **Sedum annuum** L.

Lge. Consp. Fl. Groenl. p. 67 & 258, Berlin Kärlväxter p. 37.

Rare; on steep rocks above herby slopes, only in the interior, as a rule 5, from 2—8 ctm. high, with many stems. Flowers from the 25th of June—15th of August; sets abundant, full ripe fruit and dies then. The flowering is very abundant, a specimen, 5 ctm. high, had 125 flowers, a large one of a height of 8 ctm. 171 flowers.

Nigertusok, Kangerdluarsikajik, Kingorsuak on several places, Akiliarisek, Sierak, Tunok, Ikatek, Tasiusarsik in Angmagsalik Fjord, Sarfakajik, Kordlortok Sö, Tasiusak, Kong Oscars Havn (Berlin)!

68. **Sedum villosum** L.

Lge. Consp. Fl. Groenl. p. 67.

On steep sun-lit rocks above the herby slopes, snow-covered in winter, rare. The specimens are 3—6 ctm. high. It flowers in the middle of June, sets abundant seed. Wintering branches with dark reddish green, closely rosulate leaves of a diameter of abt. 6 mm. are sometimes found snowless, but alive in winter.

Nigertusok, Kingorsuak, Akiliarisek, Amaga in Sermilik, Sierak, Amaga near Tasiusak, Udkigsfjæld near the colony.

69. **Sedum acre** L. Sp. pl.

Fl. Dan. Tab. 1457. — New for Greenland!

On rocks and algal ground, was especially rankly growing in cracks and fissures, which it filled up totally, and among the algae themselves, immediately above the high-water mark; it forms tufts of a breadth of more than 20 ctm. and a length of more than 1 mt. and a height of more than 3 ctm.

Tunok, Ingmikertok in Angmagsalik Fjord, Amakâ near Tasiusak. — Geographical distribution: Europe, Siberia, Asia Minor, North Africa.

Fam. 13. Umbelliferae.

70. **Archangelica officinalis** Hoffm.

Lge. Consp. Fl. Groenl. p. 68, Hartz Fanerog. p. 392.

Rather rare and only in the interior on warm, sun-lit slopes with water-courses running throughout the summer or on springs; always snow-covered in winter.

40—100 ctm. high, with 1—many stems, the stems up to 6 ctm. in diameter, erect with 2—4 leaves and 1—3 basal-leaves, 1—5 umbels on every stem. The umbels are up to 10—15 ctm. in diameter, the involucres 0—1, sometimes lobate, the involucels many-leaved, often lobate. It flowers from the 1st of July till October, with fruit from August, the fruit does not ripen every year. The corollas greenish-white or yellowish-green of a peculiar sweetish odour; the honey-formation abundant; proterandrous. The specimen dies after having set fruit, but the stems often remain throughout the winter, dry up, and often with umbels and fruits that have not become fullripe. The seed germs in spring; seedlings are found in great numbers below the dead specimens. The plant is at least 4 years in reaching full development. During the first year they get but 1—2 leaves with 10—15 ctm. long stalks and single tripartite plate with serrated leaflets; the root is 5—10 mm. thick. The second year the number of the leaves is 3—6, the form is the normal one, but they are but 25—35 ctm. long. The root is until 3 ctm. thick. The third year there are 5—8 leaves with until 50 ctm. long and 2 ctm. thick stalks and 40—50 ctm. broad plate, the root is now until 8 ctm. in diameter at a length of 10—20 ctm., reaches but just as far as the earth's crust, but goes 60 ctm. into the ground. The whole plant has a peculiar carrotish taste, leaving a musky umbelliferous taste. It is especially during the flowering time eaten with preference by the natives who often undertake miles long wanderings to get hold of it. One man can carry with him 15—20 kilogram stalks besides immense lots, peeled and eaten on the spot. As a consequence the plant is now limited to localities not easily accessible, high up on the rocks or behind glaciers, rapid rivers or ice-filled inlets, and nowhere else it now attains its most vigorous development, but is going to be extirpated in all localities easily accessible.

Northern limit 66° 19′ lat. N., observed up to 700 mt. above the level of the sea, thrives best at a height of 150—300 mt.

Kilikitak and Kakasuak near Kingorsuak, Akiliarisek, the bottom of the Sierak valley, Ikerasausak, in two places near the bottom on the eastern side, Kuaralik near the Sermilik road from the colony.

The large island in Kordlortok Sö, the southern side of the Kordlortok Fjæld, Amagâ. Stated, but not collected (Bay)!

Fam. 14. Plantaginaceae.

71. **Plantago maritima** L.

Lge. Consp. Fl. Groenl. p. 68, Berlin Kärlväxter p. 58.

The tufts small, 1—2 (exceptionally 8) ctm. in diameter, flower stalks 1—6 ctm. long, the inflorescense 5 mm. thick and 4—6 mm. long. It flowers in July.

Found but in one place, 65° 33′ lat. N., Grönlænderpynt near Tasiusak on a small stony plain, presumably in the same place where it was collected by Berlin.

Fam. 15. Plumbaginaceae.

72. **Armeria vulgaris** Willd., var. **sibirica** Turcz.

Rosenvinge, Tillæg p. 683. A. sibirica Lge. Consp. Fl. Groenl. p. 70 & 259, Hartz Fanerog. p. 392.

In table-land up to 350 mt. above the level of the sea; rare, 5 ctm. high; abundantly flowering. Flowers in July.

Adloe near Kap Dan, Elvbakker near Tasiusak, Tasiusak (Bay)!

Fam. 16. Lentibulariaceae.

73. **Pinguicula vulgaris** L.

Lge. Consp. Fl. Groenl. p. 71 & 260, Berlin Kärlväxter p. 58.

In humid places in heath and table-land, especially near the edge of steeply sloping rocks; rare; 5—10 ctm. high with 1—3,5 ctm. long leaves. Flowers in July; sets ripe fruit in August. The leaves are frequently set with small insects.

Nigertusok, Kakausak near Kingorsuak, Akiliarisek, Sierak, Ikerasak, Tunok, Kuarmiut, Misutok, Kordlortok, Elvbakker, Kong Oscars Havn (Berlin)!

Fam. 17. Scrophulariaceae.

74. **Veronica alpina** L.

Lge. Consp. Fl. Groenl. p. 72 & 261, Berlin Kärlväxter p. 261, Hartz Fanerog. p. 392.

Rather common on herby and grassy slopes and in copses of willows. 5—20 ctm. high; stems glabrous or towards the top somewhat hairy; they grow close together and form often a cover of more than 1 □ mt. or in 4—5 branched isolated tufts with ascending shoots. Flowers from the 20th of June till the 1st of August, sets abundant ripe fruit.

Kap Wandel, Nigertusok, Kangerdlugsuatsiak, Kangerdluarsikajik, Smalsund, Ikatek, Kingorsuak, Akiliarisek, Ikerasausak, Tunok, Tasiusarsik in Angmagsalik Fjord, Sarfakajik, Adloe near Kap Dan, common near Tasiusak, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

var. *villosa*.

Lge. Consp. Fl. Groenl. p. 93; 5—10 ctm. high, the whole plant very hairy.

Tasiusarsik in Angmagsalik Fjord together with the main species and transition forms.

75. **Veronica saxatilis** L. fil.

Lge. Consp. Fl. Groenl. p. 73 & 261, Hartz Fanerog. p. 392.

Here and there on herby slopes and on steps of steep rocks above the slopes; 5—10 ctm. high, up to 2 mm. thick, far branching shoots forming small tufts. The leaves always glabrous. The corolla up to 1 ctm. in diameter. Flowers from the 1st of July. Sets abundant ripe fruit. Old fructifications with open capsules remain often 3 years on the plant.

Nigertusok, Ikatek, Kakasuak near Kingorsuak, Akiliarisek, Kuarmiut, Tasiusarsik in Angmagsalik Fjord, Amagâ, Kordlortok Sö, Elvbakker, Tasiusak (Bay)!

76. **Pedicularis flammea** L.

Lge. Consp. Fl. Groenl. p. 75 & 262, Berlin Kärlväxter p. 58.

Rather rare in fertile heath. 5—15 ctm. high, often with many stems; flowers from the 20th of June till the 15th of July, sets abundant ripe fruit, old fructifications are common.

Kap Wandel, Kingorsuak, Sierak, Tunok, Ikerasausak, Kordlortok, Elvbakker, Kong Oscars Havn (Berlin)!

77. **Pedicularis hirsuta** L.

Lge. Consp. Fl. Groenl. p. 76 & 262, Berlin Kärlväxter p. 57.

Common in heath and table-land, is often found in places where there is much humidity in spring, but is always dry in summer; 10—25 ctm. high, with up to 7 flowering stems, flowers from the 1st of July, sets abundant ripe fruit, old fructifications are common and remain on the plant until 3 years after the ripening.

78. **Pedicularis lanata** Cham.

Lge. Consp. Fl. Groenl. p. 76 & 262.

Very rare; on sandy slopes. 5—15 ctm. high, flowers in July, sets ripe fruit.

Kingorsuak, Elvbakker at Tasiusak.

79. **Bartsia alpina** L.

Lge. Consp. Fl. Groenl. p. 78 & 263, Berlin Kärlväxter p. 58, Hartz Fanerog. p. 392.

Commonly distributed on herby slopes and in fertile heath. 10—20 ctm. high, as a rule with many stems, often with 2—3 years old fruit-stalks, flowers July-August, sets abundant ripe seed.

Kap Wandel, Kangerdlugsuatsiak, Ödesund, Kangerdluarsikajik, Kingorsuak, Akiliarisek, Amagak in Sermilik, Kuarmiut, Ikerasausak, Sierak, Tunok, Misutok, Kordlortok, Sarfakajik, Elvbakker, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

var. *Jensenii* Lge. Consp. Fl. Groenl. p. 263.

In fertile humid heath on the bank of a dried up brook. A 12 ctm. high specimen with 6 erect shoots, issuing at a bow from a rhizome abt. 0,8 ctm. thick and 1 ctm. long with numerous thick adventitious roots. The leaves light green; the corolla pale blue; was found in bloom on the 24th of July. It bore besides the fresh year's shoots 4 old and dry from previous years of which one with rests of a capsule.

The bottom of Kingorsuak 66° 10′ lat. N.

80. **Euphrasia latifolia** Pursh.

Fl. Am. sept. II. p. 430. E. officinalis L. Lge. Consp. Fl. Groenl. p. 79 & 264, Berlin Kärlväxter p. 56.

Rather rare, on herby and grassy slopes and on rocky steps above the slopes. 1—15 ctm., as a rule unbranched stems (rarely with two branches from the ground). Flowers richly in the latter half of July, sets abundant ripe fruit. Thrives best in the interior.

Nigertusok, Kakasuak near Kingorsuak, Akiliarisek, the bottom of the Sierak Dal, Tasiusarsik in Angmagsalik Fjord, Sarfakajik, Tasiusarsik, Kordlortok Sö, Elvbakker, Kong Oscars Havn (Berlin)!

Fam. 18. Boraginaceae.

81. **Mertensia maritima** (L.) Don.

Stenhammaria maritima (L.) Rchb.; Lge. Consp. Fl. Groenl. p. 80 & 264.

On a stony plain near the beach; found only in one place in bloom on the 9^{th} of July, faded on the 26^{th} of August. But 3 specimens altogether were found.

Grönlænderpynt near the trading station Tasiusak 65° 37′ lat. N.

Fam. 19. Labiatae.

82. **Thymus Serpyllum** L. var. **prostrata** Horn.

Lge. Consp. Fl. Groenl. p. 81 & 264, Berlin Kärlväxter p. 57, Hartz Fanerog. p. 392.

Commonly distributed in the interior on herby slopes and on rocky steps above these, also in the best parts of the table-land, rare on the coast and only on herby slopes. Always decumbent or at best as espalier against blocks of stone with up to 40 ctm. long and 3 mm. thick branches. Flowers in July, sets ripe fruit.

Northern limit Kap Wandel 66° 20′ lat. N.

Fam. 20. Gentianaceae.

83. **Gentiana nivalis** L.

Lge. Consp. Fl. Groenl. p. 82 & 264, Berlin Kärlväxter p. 55.

On rocky steps above the herby slopes; rare.

2—10 ctm. high with up to 10 flowering branches, flowers in July, sets abundant ripe fruit.

Kap Wandel, Nigertusok, Kakasuak near Kingorsuak, Akiliarisek, Misutok, Sierak, the bottom of the Sierak Dal, Ikerasak, Tunok, Tasiusarsik in Angmagsalik Fjord, Kordlortok Fjæld, Kong Oscars Havn (Berlin)!

84. **Gentiana tenella** Rottb.

Lge. Consp. Fl. Groenl. p. 265.

On rocky steps above herby slopes, very rare. 1—10 ctm. high, divided from the ground in one erect main stem and 3—4 ascending branches, ending each with one flower. Flowers in the end of July; the corolla pale bluish purple, sets fruit, but the ripening was not observed.

Found but on the humid steppy side, exposed to the south, of the mountain Kakasuak c. 700 mt. above the level of the sea, where numerous specimens were found. Kingorsuak.

***Malva neglecta** Wallr.

On refuse-heaps near the colony, sterile, introduced.

Fam. 21. Diapensiaceae.

85. **Diapensia lapponica** L.

Lge. Consp. Fl. Groenl. p. 83 & 265, Berlin Kärlväxter p. 55, Hartz Fanerog. p. 392.

Common every where. Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

Commonly distributed in table-land, heath, on rocky steps and on herby slopes. Forms tufts of as much as 35 ctm.s' diameter and 7 ctm.s' height above the ground; the tufts are often dead at the top or in spots. Seedlings and small specimens of 3—10 mm.s' diameter are common in table-land. Flowers from the 15th of June till the 15th of August, sets abundant ripe fruit. The peduncles are 0,5—4 ctm. long.

Fam. 22. Pyrolaceae.

86. **Pyrola rotundifolia** L. var. **grandiflora** D. C.

P. grandiflora Rad. Lge. Consp. Fl. Groenl. p. 84 & 266.

Found but in one place on green-sward among blocks flung down, but here in great numbers. 10 (exceptionally 15) ctm. high, with 4—6 flowers in clusters, the corollas white with a faint pink shade, 1—1,5 ctm. in diameter; they have a faint agreeable odour. In bloom on the 1st of August.

The west side of Kingorsuak, 66° 8′ lat. N.

87. **Pyrola minor** L.

Lge. Consp. Fl. Groenl. p. 84 & 266, Berlin Kärlväxter p. 54, Hartz Fanerog. p. 392.

Here and there, never common or in greater numbers, in copses of willows, and on herby slopes in well sheltered localities in the interior. 10—15 ctm. high with leaves of a length of 2—3 ctm. Flowers up to 10 in the cluster; where it appears on the coast it has always been found to be sterile.

Kap Wandel, Nigertusok, Kangerdluarsikajik, Cassiope Fjæld, Kakortok and the west side of Kingorsuak, Ikerasausak, Tunok, Tasiusarsik in Angmagsalik Fjord, the bottom of the Kuarmiut, Sierak Dal, Kordlortok Sö, Elvbakker, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

Fam. 23. Ericaceae.

88. **Phyllodoce coerulea** (L.) Gren & Godr.

Lge. Consp. Fl. Groenl. p. 86 & 266, Berlin Kärlväxter p. 53.

Rather common on herby slopes and in the most fertile parts of the heath, especially in shelter of rocks on the sunny side. Up to 30 ctm. high. Flowers sparingly from the 20th of June till the 1st of August; sets (rather sparingly) ripe fruit.

Kap Wandel, Kangerdlugsuatsiak, Smalsund, Kingorsuak, Akiliarisek, Ikerasausak, Kingak Angmagsivik, Tunok, Sierak, Sarfakajik, Kordlortok Sö, Amagâ, Elvbakker, Udkigsfjæld, Sömandsfjæld, Kong Oscars Havn (Berlin)!

89. **Cassiope tetragona** (L.) Don.

Lge. Consp. Fl. Groenl. p. 87 & 266.

Found but in a single place in heath on the shady side of a mountain range between 150 and 800 mt. above the level of the sea from 66° 5′—66° 9′ lat. N. and only rank in the middle of the stated area. Here the tufts attained a diameter of 30—70 ctm. and a height above the ground of 15—25 ctm., its development was also most vigorous almost in the middle of its vertical distribution between 500 and 700 mt. above the level of the sea; here almost every specimen was flowering ($^{24}/_{6}$—$^{27}/_{7}$) and numerous ripe and old fruits were seen; lots of young specimens were also found (but seedlings were not seen). Many of the less vigorous specimens were much injured from Exobasidium. On the extreme points of the habitat downwards and in horizontal direction but a single sterile and stunted specimen was found after a long time spent in searching, while the limit upwards (800 mt.) was due to orographic influences, the rock being here covered with debris offering no habitat and the boundary-specimens being vigorous and commanding cover-forming.

Kingorsuak from Cassiope Fjæld as far as below the first glacier on the west side.

90. **Cassiope hypnoides** (L.) Don.

Lge. Consp. Fl. Groenl. p. 87 & 267, Hartz Fanerog. p. 392. Andromeda hypnoides Berlin Kärlväxter p. 53.

Rather common on herby slopes, on rocky steps, in humid places in table-land and among blocks of stone, often in shade. The tufts up to 25 ctm. in diameter, thick, up to 5 ctm. high. Flowers richly from the 20th of June, sets abundant ripe fruit.

Kap Wandel, Nigertusok, Kangerdlugsuatsiak, Ikatek, Kingorsuak, Akiliarisek, Ikerasausak, Tunok, Elvbakker, Kordlortok, Sarfakajik Amagâ, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

91. **Loiseleuria procumbens** (L.) Desv.

Lge. Consp. Fl. Groenl. p. 88 & 267, Azalca procumbens L. Berlin Kärlväxter p. 53.

Commonly distributed in table-land, on rocky steps and herby

slopes and in heath. Flowers from the 10th of June till the 15th of July, sets abundant ripe fruit, old fructifications are often found. The tufts become up to 70 ctm. in diameter and 2—3 ctm. high with the branches buried in the earth, the head of the root is often thickened. Old tufts are always dead in the middle.

92. **Rhododendron lapponicum** (L.) Wbg.

Lge. Consp. Fl. Groenl. p. 88 & 267, Berlin Kärlväxter p. 53.

Rare and only in the interior, in heath and on rocky steps, especially where water is oozing down in summer. The stem often tuberously thickened in the earth's crust up to 1,3 ctm. in diameter; the branches up to 30 ctm. long and 0,5 ctm. thick, decumbent or ascending, but not more than 8 ctm. above the ground. Flowers from the 20th of June till the 15th of July, sets abundant ripe fruit.

Nigertusok, Eskimo Ö, Kingorsuak, Sierak, Elvbakker.

β. viride Berlin Kärlväxter p. 53.

Smaller than the main species. The leaves greenish on their under sides.

Tasiusarsik in Angmagsalik Fjord one single sterile specimen, abt. 10 ctm. high, Kong Oscars Havn (Berlin)!

Fam. 24. Vacciniaceae.

93. **Vaccinium uliginosum** L.

Lge. Consp. Fl. Groenl. p. 90 & 268, Berlin Kärlväxter p. 52, Hartz Fanerog. p 392.

Commonly distributed in the interior on herby slopes and in humid fertile heath, also as espalier in table-land. Up to 50 ctm. long stems and branches, arising up to 25 ctm. above the ground. The leafing takes place in the latter half of May. Flowers in June, the flowers fragrant, sets abundant ripe fruit.

* *microphyllum* Lge. l. c.

Appears together with the main species and transition forms, but is more hardy and is therefore also found on the coast and in dry places in the table-land exposed to the wind; requires much humidity in spring. Flowers rather sparingly, sets ripe fruit.

Common everywhere.

Fam. 25. Rubiaceae.

94. **Galium palustre** L. var. **minus** Lge.

Lge. Consp. Fl. Groenl. p. 92 & 269.

Found but in one place in the edge of a pond among moss and grass, but here very numerous. 3—10 ctm. long, richly branched creeping shoots with 4-leaved whorls. The joints of the stems 0,7—1 ctm. long. The leaves 1—5 mm. long, c. 1,5 mm. broad. The flowers 1—4 in cyme, abt. 1 mm. broad, the corol white, tripetalous, the fruit 0,5—0,8 mm. in diameter. Flowers from the 10th of July till the 10th of August, in fruit on the 20th of August.

The Subularia Dam in Elvbakker at Tasiusak.

Fam. 26. Campanulaceae.

95. **Campanula uniflora** L.

Lge. Consp. Fl. Groenl. p. 92 & 269.

Very rare, high up in the mountains on the shady side in the interior, up to 15 ctm. high. In bloom from the 13th of July till the 1st of August.

The west side of Kingorsuak, Amagâ in Sermilik.

96. **Campanula rotundifolia** L.

Lge. Consp. Fl. Groenl. p. 93 & 270, Berlin Kärlväxter p. 50, Hartz Fanerog. p. 393. C. groenlandica Berlin l. c.

This very variable species appears in two forms.

α. arctica Lge. l. c. C. rot. v. linifolia Wbg., C. rot. v. Langsdorffiana D. C., C. Scheuczeri Vill., C. helcrodoxa (West) Witasek. Commonly distributed on herby slopes, in copses of willows and heath, 10—30 ctm. high, 1—6 flowers. In older specimens numerous bowed off-shoots[1]) issue from a vigorous perpendicular top-root. By and by they arise and flower. While still sterile they bear oval-lanceolate leaves and cordate or oval basal-leaves; the leaves of the flowering stem become towards the top more and

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[1]) See Warming: Botanisk Tidsskr. Copenhagen 1877, p. 84.

more linear, and sometimes all leaves except the 2—3 lowest are narrow linear. The lobes of the calyx are 4—9 mm. long ($^1/_2$—$^1/_3$, exceptionally $^1/_4$—$^1/_5$ of the length of the corolla). The corolla 13—20 mm. long, and when dried 15—20 mm. wide at the top. Flowers in July—August—September, sets ripe fruit. A few specimens are approaching the main species very much.

β. uniflora Lge. l. c. C. groenlandica Berlin l. c.

Commonly distributed in all formations; 5—10 ctm. high stem ascending from a perpendicular master-root, less often with than without the above mentioned lateral shoots. The stems have 1 flower, or 1 fully developped and 1—2 checked flowers. Basal leaves as in the preceding plant. The stem leaves most often somewhat broader, narrow lanceolate-oval or lanceolate-lingulate, the upper ones always narrowest, often linear. The calyx quinque-(6—9-) dentate, the denticles narrow, $^1/_3$ (exceptionally $^1/_4$—$^1/_5$) of the length of the corolla. The corolla often large and open and more broad than long when dried. The flowers erect. Flowers July—October, sets abundant ripe fruit.

I have referred *C. groenlandica*, described by Berlin, to this form because I do not consider it differing as to species from it. Taken each by itself the original specimens of Berlin in the Riksmuseum in Stockholm are very characteristic, but examined together with a greater number of specimens, collected by me for this purpose, all transitions will be found to appear, and not all original specimens are exactly congruent with the description. Those of them which I have seen are not dentate (this character has occasioned Lange's referring a specimen collected by Mr. Knutsen at Kingorsuak (Kangarsuk) to *C. groenlandica*) neither are the sepals always so short as stated; in one specimen they are even almost as long as $^1/_3$ of the length of the corolla, and this is in another of the specimens not more broad than long. It will on the whole be impossible to base a separation of species on the above named characters. This will appear from the following list of measurings.

In the list all the numbers are given in millimeter, and the form of the leaves is given by the greatest measured breadth divided by the greatest length of the same leaf. I have endeavoured to measure the broadest leaves among the lower stem leaves. C:C. indicates the length of the lobes of the calyx in proportion to those of the corolla, both of them measured from the deepest

Form of the basal-leaves	The leaves of the stem: Lower: Form	Lower: Incision	Upper: Form	Upper: Incision	The flowers: Number	Number of the lobes of the petal	Measure: C : C	Measure: Corolla L : Br	Full height of the plant	Finding place and time
0	linear	0	linear	0	1	8	5:25	25:35	130	Elvbakker Tasiusak $^{20}/_{8}$ 02.
						8	4,5:23	23:34	131	
0	linear	0	linear	0	—	5	4:18	18:18	200	Tasiusak $^{22}/_{8}$ 98.
0	3:29 stalk 14	0	2:30	0	4	5	4:20	20:20	160	Sarfakajik $^{26}/_{8}$ 02.
0	2:16 stalk 4,5	0	1:15	0	1	5	3:13	13:10	60	Kuarmiut $^{16}/_{7}$ 02.
0	3,5:21 st. 11	0	linear	0	4	5	3,5:18	18:22,5	220	Amakâ $^{14}/_{8}$ 02.
cordate	3,5:20	0	1:25	0	3	8	5:20	20:28	150	Amagâ $^{15}/_{8}$ 02.
0	3,5:13 / 2,5:15 st. 7	a few fine denticles	1,5:25	0	*	—	5:16	16:19	100	Ikatek $^{13}/_{9}$ 99.
0	2:10	0	0,3:10	0	—	5	5:15	15:19	60	Kakasuak $^{30}/_{7}$ 02.
0	4:12 stalk 10	1 denticle	1,5:22,5	0	1	5	7:12	12:16	75	Kap Wandel $^{1}/_{8}$ 99.
cordate 16:12	4:14	0	thread-formed	0	1	5	5:14	14:19	70	Amakâ $^{14}/_{8}$ 02.
					1	6	5:19	19:29	140	
0	5:26	repand	1:10	dentate	—	5	8:17	17:21	150	Amagâ $^{21}/_{8}$ 02.
round 7:9	3:12 stalk 12	0	linear	0	—	5	6:17	17:17	180	Sierak $^{20}/_{7}$ 02.
rhomboid	3:12 stalk 6	0	2:27	0	1	5	9:20	20:26	100	Sierak $^{19}/_{7}$ 02.
0	7:23	0	1:16	0	—	5	6:17	17:18	170	Tasiusak $^{22}/_{8}$ 99.
cordate 16:12	7:22	dentate	3:28	0	1	5	bud		200	Elvbakker $^{22}/_{8}$ 99.
cordate 12:15	7:18	dentate	—	0	—	—	sterile		†	Amakâ $^{11}/_{8}$ 02.
	4:10		2:30	0	2	5	bud			

*) 11 Stems with one flower. †) Shade-lowing form.

incision of the brim of the calyx to its point. L. Br. is the length of the corolla divided by its breadth when dried and compressed; only totally stretched corollas have been measured.

It is seen that the breadth of the corolla is varying independently of the length of the denticles of the calyx and the form and indentations of the leaves. Especially the form of the leaves is very dependent on the habitat. Shade produces broad dentate leaves, a free habitat narrow entire leaves, but not even these two characters are varying in a parallel way. This has besides, been stated abready by Goebel in 1895[1]) and later on by Familier[2]). It seems as if these shade loving forms are flowering late in the year and sometimes have broad corollas.

Fam. 27. Compositae.

97. **Taraxacum croceum** Dahlstedt.

G. Andersson och H. Hesselman: Bidr. t. kännedomen om Spetsbergens och Beeren Eilands Kärlväxtflora. Bih. t. K. Sv. Vet.-Akad. Handl. Bd. 26. Afd. III. No. 1, p. 12. Taraxacum officinale Web. Lge. Consp. Fl. Groenl. p. 94 & 270, Berlin Kärlväxter p. 44, Hartz Fanerog. p. 392.

The leaves, 5—12, are lingulate, 5—33 (as a rule 10) ctm. long, at the top 1—1,5 ctm. broad, more or less deeply lobate dentate or slightly and remote sinuate dentate. The denticles wry. The point of the leaf round or pointed. The leaves green, glabrous with purple midnerve.

1—4 peduncles, 10—60 (as a rule 20) ctm. long, the heads 2—2,5 ctm. in diameter. The flowers yellow, the marginal flowers 1,75—2 mm. broad with a broad reddish purple or bluish purple stripe on their outer sides, running out into three middenticles. Style and stigma saffron coloured. Outer phyllaries protruding, 5—6 mm. long and 1,5—2 mm. broad with white or reddish purple edges and rough brownish purple point. Inner phyllaries linear, 1 ctm. long, 1 mm. broad, at the point contracted to a brownish

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[1]) Ueber die Abhängigkeit der Blattform v. Camp. rot. v. Lichtintensität. Sitzungsb. d. bayr. Akad. d. Wissensch. 1895 p. 331.

[2]) Flora Bd. 87, 1900 p. 95.

purple, often slightly dentated appendage. The fruit 2,5 mm. long, oboval lanceolate, pale terracotta coloured or dirty straw coloured with small upright denticles. The beak up to 9 mm. long.

Both forms mentioned by *D.* are often found side by side, and it is impossible then to keep them from each other.

They flower from the 20th of June till the 1st of September, set abundant ripe fruit in August.

On herby and grassy slopes, on steps, in copses of willows and less often in table-land and heath. Rather common in the whole district both on the coast and in the interior, noted in all places. Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

98. **Hieracium alpinum** L.[1])

Lge. Consp. Fl. Groenl. p. 95 & 271, Berlin Kärlväxter p. 44, Hartz Fanerog. p. 392.

Rather common on herby and grassy slopes, on steps and in heath. The leaves numerous, 2—8 ctm. long. The peduncle 15—20 ctm. high, hairy, the heads 2—3,5 ctm. in diameter. Flowers from the 10th of July till September, sets abundant ripe fruit.

Common everywhere in the district both on the coast and in the interior. Kong Oscars Havn (Berlin)! Tasiusarsik (Knutsen)! Tasiusak (Bay)!

99. **Hieracium nigrescens** Willd. ***hyparcticum** Almquist.

Berlin Kärlväxter p. 46. H. atratum Fr. Lge. Consp. Fl. Groenl. p. 271.

Here and there on herby slopes and in copses of willows in the interior. 30—50 ctm. high, the basal-leaves 10—20 ctm. long. The number of the heads 2—8. Flowers from the 20th of July till the 30th of September, sets abundant ripe fruit.

Kangerdluarsikajik, Kakasusak and Kilikitak near Kingorsuak, Ikerasausak, Kuarmiut, the bottom of the Sierak Dal, Tasiusarsik in Angmagsalik Fjord, Kordlortok Sö, Kuaralik at Sermilik-Vejen, Amakâ at Kordlortok Fjæld, Amagâ, Elvbakker, Kong Oscars Havn (Berlin)!

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[1]) The Hieracium species were kindly determined by Amanuensis Dahlstedt in Stockholm.

100. **Hieracium dovrense** Fr. ***groenlandicum** Almq.

Lge. Consp. Fl. Groenl. p. 272.

Very rare and only in the interior in especially well sheltered, warm localities with large and constant snow cover in winter, on herby slopes and in copses of willows. 30—40 ctm. high, with 2—3,10 ctm. long stem leaves.

Kakasuak near Kingorsuak, Akiliarisek, 66° 19′—66° 8′ lat. N.

101. **Gnaphalium supinum** L.

Lge. Consp. Fl. Groenl. p. 99 & 275, Berlin Kärlväxter p. 42, Hartz Fanerog. p. 392.

Here and there on rocky steps and on herby slopes, 4—6 ctm. high, flowers from the 15th of July till the 1st of October, with ripe fruit in August.

Kakasuak, the west side of Kingorsuak, Ikatek, Smalsund, Tasiusarsik kangigdlek, Elvbakker, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

β. subacaule Wbg.

Tasiusarsik in Angmagsalik Fjord, Kordlortok, Kong Oscars Havn (Berlin)!

γ. fuscum Sommerf.

More common than the chief species, on similar localities. 5—8 ctm. high.

Kakasuak, the east side of Kingorsuak, Kingak Angmagsivik, Ingmikertok, Kordlortok, Sarfakajik, Elvbakker, Kong Oscars Havn (Berlin)!

102. **Gnaphalium norvegicum** Gunn.

Lge. Consp. Fl. Groenl. p. 99 & 275, Berlin Kärlväxter p. 42.

Not common; on herby slopes and rocky steps in the interior. 10—40 ctm. high, the leaves 5—17 ctm. long, 1—2,7 ctm. broad. Flowers from the 20th of July—the 1st of September, sets abundant fruit, old fruit-stalks common.

Kakasuak, the east side of Kingorsuak, Akiliarisek, Ikatek, Ikerasausak, the bottom of the Sierak Dal, Sierak, Tunok, Tasiusarsik in Angmagsalik Fjord, Sarfakajik, at Sermilik-Vejen near the colony, Kordlortok Fjæld, Amaga, Elvbakker, Kong Oscars Havn (Berlin)!

103. **Antennaria dioica** (L.) Gärtn. var. **hyperborea** Don.

Lge. Consp. Fl. Groenl. p. 100 & 275.

Very rare, on rocky steps. 7—15 ctm. high, with 1—5 stems, flowers richly in the latter half of July, with fruit on the 18th of August.

Akiliarisek, Kordlortok Sö, 66° 19′—65° 40′ lat. N.

104. **Antennaria alpina** (L.) Gärtn.

Lge. Consp. Fl. Groenl. p. 100 & 275, Berlin Kärlväxter p. 42. Hartz Fanerog. p. 392.

Rather common on herby slopes and rocky steps in all parts of the district. 5—12 ctm. high. Flowers from the 15th of June till the 15th of August, sets abundant ripe fruit.

Kakasuak, the east and west side of Kingorsuak, Falkefjæld, Akiliarisek, Sten Ö, Fugleholm, Tunok, Tasiusarsik in Angmagsalik Fjord, Kordlortok, Adloe, Sarfakajik, Amagâ, Amakâ, Elvbakker, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

var. *glabrata*. — Cassiope Fjæld near Kingorsuak.

105. **Erigeron alpinus** L. Fl. Dan. Tab. 292.

Lge. Consp. Fl. Groenl. p. 101 & 276, Berlin Kärlväxter p. 43. Rosenvinge Tillæg p. 699.

Rather common on herby and grassy slopes and rocky steps in the interior. 10—20 cmt. high, often with many stems, the basal leaves lanceolate spatulate, hairy on their under sides, more or less hairy or almost glabrous on their upper surfaces, ciliate, with a distinct midnerve, and 2—4 more or less distinct secondary nerves, sometimes a little fleshy with indistinct nerves. The stem leaves numerous, lanceolate-linear, hairy, ciliate. The heads single or 2—3 together. The phyllaries almost equally long, upright, compressed, closely hairy with white unjointed or slightly jointed woolly hairs. The marginal flowers pink or light purple, the outer tubular discous flowers ♀.

Nigertusok, Kangerdlugsuatsiak, Kangerdluarsikajik, Kingorsuak, Akiliarisek, Tasiusarsik in Angmagsalik Fjord, Kordlortok, Sarfakajik, Elvbakker, Kong Oscars Havn (Berlin)!

Northern limit 66° 20′ lat. N.

None of the specimens I saw can with certainty be referred to *Erigeron neglectus* Kerner, no more than the specimens the named author has distributed under this name (Fl. exic. austr. hung. N. 254) are totally congruent with the accompanying description, as to the hairiness of the leaves, the character of the involucre etc. Even Rosenvinge l. c. p. 700 has proved this; and Linné having according to Lange l. c. p. 276 sanctioned the Fl. dan. figure as the plant named by him, I see no reason whatever of changing its name because it does not appear in the Alps, and above all I see no reason of changing it for *E. neglectus*, to judge from the original descriptions, not found in Greenland, if on the whole anywhere.

106. **Erigeron uniflorus** L.

Lge. Consp. Fl. Groenl. p. 101 & 276, Hartz Fanerog. p. 392.

Here and there in heath, table-land and on rocky steps in the interior. 15—20 ctm. high, with many stems, the leaves spatulate, glabrous or hairy, ciliate, stem and stemleaves long hairy, the phyllaries hairy with jointed woolly hairs, no tubular ♀ flowers. The marginal flowers purple or white.

Kingorsuak, Akiliarisek, Tunok, Tasiusarsik in Angmagsalik Fjord, Kordlortok.

β. pulchellus Fr. Lge. l. c.

Common in table-land, heath and on rocky steps, 4—8 ctm. high; with 1—3 stems, the whole plant hairy, the hairs of the involucre purple, jointed, the marginal flowers short, white or yellowish white.

Tasiusak (Bay)!

I see no reason of uniting *E. uniflorus* with *E. alpinus* as proposed by Berlin; certainly the two species may on account of homogeneous conditions of life be of a striking resemblance as to habits and vegetative characters, but any gradual diminution of the number of the tubular female flowers and with this a steady transition to *E. uniflorus* I did not observe.

107. **Arnica alpina** Olin.

Lge. Consp. Fl. Groenl. p. 103.

Found only in one place, on a low gravel bank formed by disintegration.

12—22 ctm. high with 2—3 couples of leaves, the upper and lower (if there are 3 couples) lanceolate, trinervate, having thin hair on their upper surfaces, the middle ones (second couple) oval, long pointed, glabrous on their discs, all leaves ciliate. The stem especially towards the top lanate. The head 1—1,5 ctm. in diameter, the involucre lanate, the ray-flowers 2 ctm. long, light yellow, the disc-flowers 1 ctm. long, somewhat darker yellow. The fruit drab coloured (brun clair). The fruit edged, ribbed, hairy with upright protruding white hairs. The pappus white. Flowered on the 27th of July; old withered heads from the previous year were seen.

The west side of Kingorsuak, north of the first glacier 66° 7′ lat. N.

Fam. 28. Polygonaceae.

108. **Koenigia islandica** L.

Lge. Consp. Fl. Groenl. p. 104 & 277, Berlin Kärlväxter p. 60.

Here and there, not common; on humid sand, in dried up brooks, on moss in pools and old house places. Appears in two forms according to the habitat. In manured places it becomes 5 ctm. high with 2—3 alternate leaves and branches and 1 couple of opposite basal leaves. The rosette at the top has 3—4 leaves. The leaves are 7—10 mm. long and 2—4 mm. broad, oval lanceolate-spatulate. In poor, sandy localities the height is 0,5—1,5 ctm., the plant unbranched or with one branch, the stem-leaves are wanting, basal leaves and rosette leaves oval, 2—4 mm. long and c. 2 mm. broad.

Both forms flower richly in July—August and set ripe seed. They grow most often gregariously, forming cover together with Hypna over spots of 1/2 □ mt., in sunny localities deep red, in shade sappy light green.

The west side of Kingorsuak, Ikerasausak, Kingak Angmagsivik, Tunok, Ingmikertok, Elvbakker Tasiusak, Kong Oscars Havn (Berlin)! Ikatek in Sermilik (Knutsen)!

109. **Polygonum viviparum** L.

Lge. Consp. Fl. Groenl. p. 105, Berlin Kärlväxter p. 60, Hartz Fanerog. p. 392.

Commonly distributed in all formations as well on the coast as in the interior. Appears in two forms connected by transitions:

α. vulgaris. On herby slopes and in copses in sheltered localities. The rhizome as a rule not swoln, 5—7 ctm. long, s-formed curved at the top, closely covered with brown ligules and short rests of leaf stalks. Most often 2 stems, 20—30 ctm. long. The inflorescence 5—9 ctm. long, with bulbs on the lower $^2/_3$. Flowers in July. The flowers white-pink. The bulbs are eagerly searched by *Emberiza nivalis.*

β. alpina. Wbg. fl. Lappon. In table-land and heath. The rhizome short, 2—3 ctm., strongly s-formed, bent double, swoln, up to 1 ctm. thick, only at the point set with 2 ctm. long leafstalks. The stem 5—10, exceptionally 20 ctm. high; the ground leaves 1—5 ctm. long, 0,5—3 ctm. broad oval. The inflorescence 2—6 ctm. long with bulbs on the lower half part. The flowers pink, the flowering begins on the 20th of June and is continued in shady localities until the beginning of the frost.

Note. The tubers are eaten by the natives.

110. **Oxyria digyna** Campd.

Lge. Consp. Fl. Groenl. p. 105, Berlin Kärlväxter p. 59, Hartz Fanerog. p. 392.

Commonly distributed in table-land, herby slopes, copses of willows, manured places and cracks in the rocks as well on the coast as in the interior; found at all heights above the level of the sea.

5—50, commonly 20 ctm. high; thickly tufted with numerous rests of old leaf-stalks round the top of the many headed rhizome. The leaf-stalks 1—20 ctm. long, the blade 1—5 ctm. broad. Flowers from the 20th of June until September, sets abundant ripe fruit. Seedling plants and young specimens are most frequently found. The great variations of the size of the plant are due to the wide extent of the habitat of the plant, the smallest specimens are found in stony plains and in table-land. The great specimens are restricted to the copses.

111. **Rumex acetosella** L.

Lge. Consp. Fl. Groenl. p. 106.

Rare and only in the interior at 300—700 m. height above the level of the sea on rocky steps.

10—15 ctm. high as a rule, with many stems, leaves with one or two more or less distinct denticles at the ground.

The east side of Kingorsuak, Akiliarisek, 66° 19′—66° 10′ lat. N.

var. *integrifolius* Wallroth.

5—10 ctm. high, many stemmed tufts, all leaves with round or pointed basis. Rare, on rocky steps.

Kilikitak, Kakasuak, Kingorsuak, Akiliarisek, Tunok.

Both of them flower in July and set ripe fruit in August.

Fam. 29. Salicaceae.

112. **Salix herbacea** L.

Lge. Consp. Fl. Groenl. p. 107 & 278, Berlin Kärlväxter p. 61, Hartz Fanerog. p. 392.

Commonly distributed in all formations as well on the coast as in the interior, often gregariously and forming cover of a height of 5 ctm. Lonely growing specimens attain sometimes a thickness of the stem of 0,8 ctm. and a length of 40 ctm. In table-land the stem is not rarely tuberously thickened at the surface of the earth to a diameter of 1,5 ctm. The leaves are 0,5—3 ctm. broad, come out after the 1st of June. Flowers richly from the 6th of June, sets abundant ripe fruit, that is spread in August.

113. **Salix arctica** Pall. β. **groenlandica** Lundstr.

Salix groenlandica And. Lge. Consp. Fl. Groenl. p. 108 & 279.

Commonly distributed in humid places as pools, oozy and sandy flats, on brooks, more rarely in copses; branches are as a rule decumbent, rooting, 20—30 ctm. long. Flowers from the 1st of July, sets abundant ripe fruit.

114. **Salix glauca** L.

Lge. Consp. Fl. Groenl. p. 110 & 279, Berlin Kärlväxter p. 61, Hartz Fanerog. p. 392.

Commonly distributed in all formations as well on the coast as in the interior. 5—250 ctm. long, up to 5 ctm. thick stems, as a rule adpressed, but in copses they may arise to 105 ctm. above the earth. The shoots distinctly separated in long-shoots, upright, stretched and straight with most often large oval leaves, and crooked knotty lateral short-shoots with oval lanceolate leaves. The hairiness of the leaves is much varying from thickly lanate or silkhairy to almost glabrous; the former are the most common on the short shoots, in heath and table-land, the latter in copses and on herby slopes (var. *subarctica* Lundstr.); but are not rarely found together in the same specimen; especially where a stem with hairy narrow leaves is broken, broad, obtuse glabrous leaves are seen on the rank long-shoots, shooting ont from the stub. The hairiness varies also much according to the season. The styles, the hairiness of the ovary and the form of the nectary are varying very much, but not in a parallel way (as stated by Lundstrøm: Die Weiden Novaja Zemljas) so that no certain systematic separations can be built on these circumstances. The limit between *S. glauca,* var. *subarctica* and *S. groenlandica* is as stated by Lundström and Rosenvinge incertain and these two species ought certainly to be united to one single; I have not done it here because of biological differences between them as to habits and habitat making one hardly never doubt in nature which of the two plants one is before.

Fam. 30. Betulaceae.

115. **Betula nana** L.

Lge. Consp. Fl. Groenl. p. 112 & 280, Berlin Kärlväxter p. 64, Hartz Fanerog. p. 392.

Not common and only in the interior, in heath and table-land, most as espalier, but appearing often gregariously in the habitat, so that it is a considerable constituent part of the vegetation. Up to 20 ctm. raised above the earth, the stem up to 2 m. long, but as a rule but 40—60 ctm. Flowers from the 20^{th} of June till the 15^{th} of July, sets ripe fruit.

Kangerdlugsuatsiak, Kingorsuak, common, Akiliarisek, Amagâ in Sermilik, Ikerasausak, Tunok, Sierak, Kordlortok Sö, Amakâ (numerous), Sarfakajik, Amagâ, Udkigsfjæld, Elvbakker, Kong Oscars Havn (Berlin)!, Tasiusak (Bay)!, Tasiusarsik and Orsuluiak (Knutsen)!.

Fam. 31. Typhaceae.

116. **Sparganium minimum** Fries.

Rosenvinge Tillæg, p. 709. Anm. p. 710. «Sparganium» in B. G. Nathorst. Kritiska anmärkn. om den grönl. vegetat. hist. Bihang t. kgl. sv. Vet.-Akad. Handl. Bd. 16, III, Nr. 6, 1890 p. 17. Ostenf. Fl. arctica p. 18.

Very rare, in ponds with 20—40 ctm. deep water, sometimes drying up in August. The stems are 30—40 ctm. long, with 2—3, 60—80 ctm. long floating leaves, 1—2 female heads without or with one short stalk; sometimes the lower one is free from the ligule; 1 male head. Flowers in the middle of August, sets ripe seed.

Amakâ in one of the ponds, Sparganium-Dam in Elvbakker near Tasiusak.

The *Sparganium* mentioned by Prof. Nathorst l. c. is undoubtedly the above named species and the finding place is undoubtedly my locality, „Sparganium-Dam", passed by N. on his long walking tour on the 4th of September 1883.

Fam. 32. Potamogetonaceae.

117. **Potamogeton filiformis** Pers.

Rosenvinge Tillæg p. 710. P. marinus Lge. Consp. Fl. Groenl. p. 117 & 282.

Found but in a single place in a pond with abt. 30 ctm. water and sandy ground covered with a layer of mud abt. 2 ctm. thick, 10—20 ctm. high; stems with numerous leaves shoot out from the thin, white, creeping rhizome; sterile.

Amakâ. 65° 39′ lat. N.

Fam. 33. Orchidaceae.

118. **Habenaria albida** (L.) R. Br.

Lge. Consp. Fl. Groenl. p. 118 & 282.

Rare, on herby and grassy slopes; abt. 20 ctm. high with four

leaves. Tubers with 5—8, fleshy, white branches. Flowers from the 15th of July till the 15th of August.

Kakasuak, Tunok, the bottom of Sierak Dal, Sierak, Tasiusarsik in Angmagsalik Fjord, Sarfakajik, Amakà near Kordlortok.

119. **Habenaria hyperborea** (L.) R. Br.

Platanthera hyperborea β. major. Lge. Consp. Fl. Groenl. p. 118 & 283.

Very rare; on herby slopes; 10—15 ctm. high with 3—7 leaves. Flowers in August.

Sarfakajik, the south side of Kordlortok Fjæld.

Fam. 34. Colchicaceae.

120. **Tofieldia borealis** Wbg.

Lge. Consp. Fl. Groenl. p. 122 & 284, Berlin Kärlväxter p. 66, Hartz Fanerog. p. 392.

Here and there in heath, on grassy slopes and on rocky steps, but always singly and not common; not observed on the coast. 5—15 ctm. high. Flowers from the 20th of June till August, sets ripe fruit.

Kap Wandel, Nigertusok, Kangerdlugsuatsiak, Kakasuak and the west side of Kingorsuak, Ikerasak, Kuarmiut, Misutok, Tunok, Elvbakker, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

Fam. 35. Juncaceae.

121. **Juncus biglumis** L.

Lge. Consp. Fl. Groenl. p. 122 & 284, Berlin Kärlväxter p. 67, Ostenf. Fl. arct. p. 25.

On humid spots in table-land; very rare, 2—7 ctm. high, with fruit in August.

Kap Wandel, Kordlortok Sö, Elvbakker, Kong Oscars Havn (Berlin)!

122. **Juncus triglumis** L.

Lge. Consp. Fl. Groenl. p. 122 & 284, Ostenf. Fl. arct. p. 25.

Not found but in one place in humid table-land. 2—4 ctm. high; in bloom on the 10th of July together with *J. biglumis.*

Elvbakker near Tasiusak 65° 35′ lat. N.

123. **Juncus castaneus** Sm.

Lge. Consp. Fl. Groenl. p. 123 & 284, Ostenf. Fl. arct. p. 24.

Not found but in one place near the brim of a small low sandy islet in the delta of a large river. 10—20 ctm. high specimens with fruit from the previous year and old 10 ctm. long leaves, the new leaves were on the 24th of June 3—5 ctm. long.

Kingorsuak 66° 15′ lat. N.

124. **Juncus trifidus** L.

Lge. Consp. Fl. Groenl. p. 123 & 284, Berlin Kärlväxter p. 67, Ostenf. Fl. arct. p. 26.

Commonly distributed in the whole district in table-land, heath, grassy slopes, on stony plains and other dry places, often snowless in winter. 3—20 ctm. high thick tufts or very spread covering among lichens *(Stereocaulon).* Flowers from the 20th of June, sets abundant ripe fruit.

Kong Oscars Havn (Berlin)!

125. **Juncus arcticus** Willd.

Lge. Consp. Fl. Groenl. p. 124 & 284, Ostenf. Fl. arct. p. 24.

Not found but in one place on a very low sandy islet in a river delta towards a lake. The rhizome creeping at the depth of 3—5 ctm., up to 50 ctm. long with numerous 20—25 ctm. high (of these the end-leaf abt. 5 ctm.) shoots, with flowers and numerous old fruit bearing shoots on the 29th of July.

Kingorsuak 66° 16′ lat. N.

126. **Juncus bulbosus** (L.) Gelert.

Ostenf. Fl. arct. p. 24. J. supinus Moench. Rosenv. Tillæg p. 714. Triglochin palustre L. Berlin Kärlväxter p. 65.

Very rare, in half dried up ponds where there has been water of at most 50 ctm., on coarse sand. 1—1,5 ctm. high, sterile shoots with 1—3 off-shoots above ground, the stemjoints of which are one-leaved and 5—7 mm. long. The whole plant has a reddish colour and grows gregariously so that it may form cover together with *Subularia aquatica* on small flats of a diameter of up to 10 ctm., separated by bare narrow parts; it is found as well submerse as in the drained ground. The submerse specimens are more greenish than the air plants.

Amakâ, pond near the sea, but above the high-water mark, Elvbakker in the Subulariadam, Kong Oscars Havn (Berlin)!

127. **Luzula multiflora** (Ehrh.) Lej. *β.* **congesta** (Taylor) Lge.

Lge. Consp. Fl. Groenl. p. 125 & 285, Hartz Fanerog. p. 392, Ostenf. Fl. arct. p. 31.

On fertile grassy slopes and in heath; rather rare and only in the interior. 10—20 ctm. high, thickly tufted. Flowers in July, sets ripe fruit.

Akiliarisek 66° 20′, Kingorsuak 66° 10, Sierak 66°, Tunok 65° 56′ lat. N., Kordlortok Sö, Tasiusak (Bay)!

128. **Luzula arcuata** (Wbg.) Sw.

Lge. Consp. Fl. Groenl. p. 127 & 285, Berlin Kärlväxter p. 68, Hartz Fanerog. p. 392.

On humid rocky slopes among moss especially on the shady side. 15—20 ctm. high, flowers in July, sets ripe fruit.

Kakasuak, Cassiope Fjæld and several other places near Kingorsuak between 66° 8′—10′ lat. N.

var. *confusa* Lindb.

Commonly distributed in the whole district in table-land and heath. 10—25 ctm. high, flowers in July, sets rich ripe fruit.

Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

129. **Luzula spicata** (L.) D. C.

Lge. Consp. Fl. Groenl. p. 128 & 286, Berlin Kärlväxter p. 68, Hartz Fanerog. p. 392, Ostenf. Fl. arct. p. 28.

Commonly distributed in all formations as well near the coast as in the interior, is not cover forming, but appears very frequently and in great quantities in the vegetation. 10—20 ctm. high, many-strawed, thickly tufted, always with lots of old stems and leaf rests round the ground. Flowers from the 15th of June till the 15th of August, sets abundant ripe fruit, is often snowless in winter, and the seeds are spread by the wind over the snow.

Kong Oscars Havn (Berlin)! Tasiusak (Bay)! Tasiusarsik kidlek (Knutsen)!

β. major Lge. l. c.

Rare; on herby slopes. 20—30 ctm. high; with 1—3 ctm. long ears; flowers during the first half of July; sets ripe fruit.

West side of Kingorsuak, Akiliarisek, Tasiusarsik in Angmagsalik Fjord, Ikerasausak, Elvbakker near Tasiusak.

Fam. 36. Cyperaceae[1].

130. **Scirpus caespitosus** L. f. **austriaca** (Palla).

Palla Bericht d. deutsch. bot. Gesellsch., 1897 p. 468, Ostenf. Fl. arctica p. 43, Lge. Consp. Fl. Groenl. p. 129 & 286.

Rare, on the banks of rocky brooks and in humid places in heath and on rocky steps, grows gregariously and forms cover over small spots. 7—10 ctm. high, flowers from the 15th of July.

Sierak, Misutok, Tunok, Kordlortok Fjæld near Tasiusak 66°—65° 40′ lat. N.

131. **Eriophorum Scheuchzeri** Hoppe.

Lge. Consp. Fl. Groenl. p. 129 & 286, Berlin Kärlväxter p. 68, Hartz Fanerog. p. 392, Ostenf. Fl. arct. p. 41.

Not common, in pools, on river banks and on sandy flats, in the interior. 15—20 ctm. high, flowers from the 20th of June, sets ripe fruit July—August.

Eskimo Ö,* Kingorsuak, Ikerasausak, Sierak, Tunok, Ikerasak Fugleholme, Kordlortok Sö, the valley behind the colony, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

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[1]) Determined by Inspector C. H. Ostenfeld.

132. **Elyna Bellardi** (All.) C. Koch.

Lge. Consp. Fl. Groenl. p. 130 & 287, Ostenf. Fl. arct. p. 44.

Very rare on rocky steps where the water is running down in spring, but where there is very dry later in summer, 15 ctm. high, flowers in July.

Akiliarisek, Sarfakajik, 66° 18′—65° 40′ lat. N.

133. **Carex nardina** Fr.

Lge. Consp. Fl. Groenl. p. 131 & 287, Berlin Kärlväxter p. 73, Ostenf. Fl. arctica p. 48.

Common in table-land and heath, and on rocky steps in the interior, not so frequent on the outer coast, 5 ctm. high, flowers in June and July.

134. **Carex capitata** Soland.

Lge. Consp. Fl. Groenl. p. 132 & 287, Rosenvinge Tillæg p. 718, Ostenf. Fl. arctica p. 49.

Very rare on herby slopes on gravelly ground. 20 ctm. high with fruit on the 17th of August 1902.

Kordlortok Sö 65° 42′ lat. N.

135. **Carex scirpoidea** Mich.

Lge. Consp. Fl. Groenl. p. 132 & 287, Berlin Kärlväxter p. 53, Ostenf. Fl. arctica p. 82.

Common in pools and near ponds, forms often especially together with other Carex-species and grasses cover. 5—20 ctm. high, flowers from the 20th of June.

136. **Carex microglochin** Wbg.

Lge. Consp. Fl. Groenl. p. 133 & 288, Ostenf. Fl. arct. p. 92.

Very rare on rocky steps above herby slopes in half dried up small water courses. 5—18 ctm. high, thickly tufted, with fruit on the 25th—26th of August.

Kordlortok Fjæld, Sarfakajik, 65° 40′ lat. N.

137. **Carex rupestris** All.

Lge. Consp. Fl. Groenl. p. 133 & 288, Ostenf. Fl. arctica p. 86.

Rare; in table-land in the interior. 5—8 ctm. high, flowers in June.

Cassiope Fjæld near Kingorsuak, Tunok. 65° 56′—66° 15′ lat. N.

138. **Carex Macloviana** D'Urv.

Ostenf. Fl. arctica p. 54. C. festiva Dewey. Lge. Consp. Fl. Groenl. p. 134 & 288, Berlin Kärlväxter p. 72.

Rather rare; on grassy slopes and in grassy field, especially near small ponds in the interior, grows gregariously and forms cover together with grasses. 10—40 ctm. high; stiffly upright, green; flowers in July, sets ripe fruit.

The bottom of the Sierak Dal, Sarfakajik, Kordlortok Sö, Nordfjord, Sparganium Dam, Elvbakker; Kong Oscars Havn (Berlin)! 66° and 65° 42′—35′ lat. N.

139. **Carex lagopina** Wbg.

Lge. Consp. Fl. Groenl. p. 135 & 288, Berlin Kärlväxter p. 72, Ostenf. Fl. arctica p. 58.

Rare; on humid sandy flats near the beach and in pools. 15—25 ctm. high; flowers in July, sets ripe fruit.

Falke Sö near Kingorsuak, 66° 5′ lat. N., the bottom of the Sierak Dal, the valley behind the station, Kong Oscars Havn (Berlin)!

140. **Carex glareosa** Wbg.

Lge. Consp. Fl. Groenl. p. 137 & 289, Berlin Kärlväxter p. 73, Ostenf. Fl. arctica p. 58.

Common in the interior at the high-water mark in sandy and clayey places, and here and there on the outer coast and sometimes at a greater distance from the beach in heath and table-land. 5—20, in manured places up to 40 ctm. long, decumbent or ascending shoots forming thick tufts on the firm marshy or clayey ground. The tufts are often 50 ctm. in diameter. Forms together with *Cerastium trigynum* cover on tent and house sites, and on

birds'-islets. Flowers from the 20th of June, sets abundant ripe fruit.

Kangerdlugsuatsiak, Kangerdluarsikajik, Kingorsuak, Ikerasausak, Sierak, Kingak Angmagsivik, Tunok, Unartok, Kuarmiut, Isi, Ingmikertok, Ingmikertorajik, Kanganitsai, Adloe near Kap Dan, Amaka, the valley behind the colony, Grönlænderpynt, Kong Oscars Havn (Berlin)!

141. **Carex brunescens** (Pers.) Poir.

Ostenf. Fl. arctica p. 56, C. vitilis Lge. Consp. Fl. Groenl. p. 136 & 289.

Very rare; found but in one place in pools. 20 ctm. high, with fruit on the 6th of August.

Tunok. 65° 56′ lat. N.

142. **Carex atrata** L.

Lge. Consp. Fl. Groenl. p. 139 & 289, Ostenf. Fl. arctica p. 64.

Very rare; not found but in one place on fertile herby slopes. 10—65 ctm. high, with fruit on the 25th—26th of August.

Sarfakajik. 65° 40′ lat. N.

143. **Carex salina** Wbg. v. **subspathacea** Wormskj.

Ostenf. Fl. arctica p. 73, C. subspathacea, *β*. curvata Drej. Lge. Consp. Fl. Groenl. p. 140 & 289, Berlin Kärlväxter p. 71.

Not common; on clayey and sandy flats near the high-water mark especially near estuaries, only in the interior, grows gregariously; 1—3, exceptionally 5 ctm. high, with creeping and ascending abt. 2 ctm. long shoots. Flowers from the 1st of July. In a single place, Grönlænderpynt, specimens were collected, forming transition to the main species; they grew in a salt marsh in an estuary and formed cover.

Kingorsuak, Ikerasausak, Sierak, Tunok, Kordlortok Vig on Amakâ, Grönlænderpynt, Kong Oscars Havn (Berlin)!

144. **Carex rigida** Good.

Ostenf. Fl. arctica p. 77, Lge. Consp. Fl. Groenl. p. 145 &

291, Berlin Kärlväxter p. 72, Hartz Fanerog. p. 392, C. hyperborea Lge. l. c. p. 145, Hartz l. c.

Commonly distributed in all formations, as well in the interior as on the coast. 5—20 ctm. high, flowers from the 20th of June, sets abundant ripe fruit.

v. *Bigelovii* (Tuck.). C. hyperborea Drej. Lge. l. c.

On herby and grassy slopes, in grassy field and in humid, sandy places, much more rare than the main species and only in the interior. 20—30 ctm. high, flowers July—August, sets ripe fruit.

Akiliarisek, Kingorsuak, Kangerdluarsikajik, Tunok, Sarfakajik, Nordfjord, Amagâ, Elvbakker, Tasiusak (Bay)!

145. **Carex capillaris** L.

Lge. Consp. Fl. Groenl. p. 148 & 292, Berlin Kärlväxter p. 69, Ostenf. Fl. arctica p. 90.

Very rare; on rocky steps. 5—10 ctm. high, flowers in July; grows gregariously on small, dried up, but in spring wet spots.

Kap Wandel, Kakasuak and the west side of Kingorsuak, Kong Oscars Havn (Berlin)!

146. **Carex rariflora** (Wbg.) Sm.

Lge. Consp. Fl. Groenl. p. 150 & 292, Berlin Kärlväxter p. 70, Ostenf. Fl. arctica p. 67.

Not rare in pools, river beds and in humid sandy flats. 5—20 ctm. high; flowers from the 20th of June, sets ripe fruit.

Kangerdlugsuatsiak, Eskimo Ö, Kingorsuak, Ikerasausak, Tunok, common near Tasiusak, Kong Oscars Havn (Berlin)!

147. **Carex supina** Wbg.

Lge. Consp. Fl. Groenl. p. 151 & 293, Ostenf. Fl. arctica p. 86.

Rare; on rocky steps and in dry cracks in the interior. 10 ctm. high; flowers in July.

Kangerdlugsuatsiak, Akiliarisek, Kilikitak near Kingorsuak. 66° 10′—18′ lat. N.

148. Carex rotundata Wbg.

Lge. Consp. Fl. Groenl. p. 152 & 293, Ostenf. Fl. arctica p. 94.

Very rare; at the edge of ponds and pools. 25 ctm. high; flowers in August.

Amakâ in pools and Subularia Dam in Elvbakker, 65° 35′—37′ lat. N.

Carex rotundata ad C. pullam accedens C. H. Ostenf.

Tunok in a low pond 65° 54′ lat. N.

Fam. 37. Gramineae.

149. Phleum alpinum L.

Lge. Consp. Fl. Groenl. p. 155 & 294, Berlin Kärlväxter p. 74, Hartz Fanerog. p. 392, Ostenf. Fl. arctica p. 100.

Here and there in copses of willows, on herby slopes and in humid heath. 20—45 ctm. high; flowers in July, sets ripe fruit.

Kingorsuak, Akiliarisek, Kangerdlugsuatsiak, Nigertusok, Kangerdluarsikajik, Grus Ö, Ikerasausak, Tunok, Tasiusarsik in Angmagsalik Fjord, Tasiusarsik kitdlek, Sarfakajik, Kordlortok Sö, Amagâ, Elvbakker, Kong Oscars Havn (Berlin)! Tasiusak (Bay)!

150. Alopecurus aristulatus Mich.

Gelert in Ostenf. Fl. arctica p. 100. A. fulvus Rosenvinge Tillæg p. 727, Berlin Kärlv. p. 74. Lge. Consp. Fl. Groenl. p. 294. A. geniculatus Lge. l. c. p. 156.

Very rare; not found but in half or totally dried up ponds at Isi 65° 58′, Amakâ 65° 37′ and on Elvbakker 300′ above the level of the sea 65° 35′ lat. N. Kong Oscars Havn (Berlin)!

151. Agrostis canina L.

Lge. Consp. Fl. Groenl. p. 158 & 295, Ostenf. Fl. arct. p. 118.

Very rare; on grassy slopes and in grass field on humid ground. 18—20 ctm. high, thickly tufted with remaining ligules, with fruit in the latter half of August.

Amakâ at Kordlortok between a pond and the sea, Amagâ on grassy slopes. 65° 38′ lat. N.

152. **Agrostis borealis** Hartm.

Murb. in Botan. Not. 1898 p. 11. Ostenf. Fl. arct. p. 109. Agrostis rubra L. Lge. Consp. Fl. Groenl. p. 157 & 295, Berlin Kärlväxter p. 76.

Here and there, not common; on grassy and herby slopes and in stony plains. 5—30 ctm. high, thickly tufted, tunicate, in sheltered localities, upright, in open places with diverging decumbent straws. Flowers from the 15th of July till the 1st of September, sets ripe fruit.

Amagâ in Sermilik, Kingorsuak, Kangerdluarsikajik, Ikatek, Sarfakajik, Kordlortok Sö, Amagâ, Grönlænderpynt, Elvbakker, Kong Oscars Havn (Berlin)!

153. **Calamagrostis neglecta** (Ehrh.) Gelert.

Gelert in Ostenf. Fl. arctica p. 103. C. stricta v. borealis. Lge. Consp. Fl. Groenl. p. 161 & 296. C. hyperborea, Berlin Kärlväxter p. 75.

Here and there in pools, on grassy slopes, on sand and clayey beach, where it forms thick associations over small areas. 20—45 ctm. high; flowers in August, sets ripe fruit; after having shed the flowers the straws often remain throughout the winter below the snow cover, and they are still seen upright at the beginning of the next flowering.

Kingorsuak, common, Ikerasausak, Kingak Angmagsivik, Ikerasak, Tunok, Tasiusarsik kitdlek, Sarfakajik, Kordlortok Sö, Amaka, Amagâ, Elvbakker, Grönlænderpynt, Kong Oscars Havn (Berlin)!

154. **Aira cæespitosa** (L.) Bab. f. **alpina** (L.) Gelert.

Ostenf. Fl. arct. p. 113, A. alpina Lge. Consp. Fl. Groenl. p. 163 & 296, Berlin Kärlv. p. 76. A. alp., β. vivipara Hartz Fanerog. p. 392.

Not rare in humid places in riverbeds and at pools.

Kangerdlugsuatsiak, Kingorsuak, Ikatek, Ikerasausak, Ikerasak, Tunok, Sarfakajik, Amakâ and in several places near Tasiusak, Kong Oscars Havn (Berlin)!

155. **Aira flexuosa** L. var. **montana** (L.) Trin.

Lge. Consp. Fl. Groenl. p. 162 & 296, Rosenv. Tillæg p. 730, Ostenf. Fl. arctica p. 112.

Found but in one spot, but here stood numerous vigorous tufts in heath at the foot of the mountain.

Kordlortok near Tasiusak 65° 37′ lat. N.

***Hordeum hexasticum** L.

Round the colony single flowering specimens abt. 60 ctm.; spread with refuse.

156. **Trisetum subspicatum** (L.) Beauv.

Lge. Consp. Fl. Groenl. p. 164 & 297, Berlin Kärlväxter p. 77, Hartz Fanerog. og Karkrypt. p. 392, Ostenf. Fl. arct. p. 110.

Common in all formations. 15—50 ctm. high; flowers from the 20th of June, sets abundant ripe fruit.

157. **Phippsia algida** R. Br.

Gelert in Ostenf. Fl. arct. p. 101, Catabrosa algida (Sol.) Fr. Lge. Consp. Fl. Groenl. p. 166 & 298.

Here and there on the beach, on oozy flats and manured ground at house ruins and on tent sites. 2—5 ctm. high. Flowers from the 20th of June till the middle of July, sets ripe fruit.

158. **Glyceria distans** (L.) Wbg.

Gelert in Ostenf. Fl. arct. p. 127, G. Borreri Lge. G. arctica Lge. Consp. Fl. Groenl. p. 167—169 & 298—299.

β. arctica (Hook) Gelert.

On a strongly manured tent site near the beach, but above the high-water mark. 25 ctm. high, pale green; in bloom on the 4th of August.

Kingak Angmagsivik.

γ. Borreri (Lge.) Gelert.

On the beach on clay or shingle in the inlets and sheltered from the beating of the waves, often below the high-water mark. Thickly tufted with numerous 2—15 ctm. long, most often decumbent

or obliquely outward turned straws. Flowers in July, sets ripe fruit. Found only in few places, but here it appears in great quantities and coverforming.

Kingorsuak, Tunok, Ingmikertok.

159. **Glyceria maritima** (Huds.) Fr. var. **vilfoidea** And.

G. vilfoidea Lge. l. c. p. 170 & 300, Berlin Kärlväxter p. 80.

On clayey flats on the beach in calm inlets without beating of the waves, often submerse during the flood-tide, never on open coast. As a rule sterile, rarely with 2—7 ctm. high straws, the creeping shoots often 40—50 ctm. long, rooting; closely adpressed, upright leaves; 3—5 ctm. high, green; coverforming over considerable flats together with *Potentilla anserina β. groenlandica.*

Kingorsuak, Kangerdluarsikajik, Kangerdlugsuatsiak, Ikerasausak, Tunok, Ingmikertorajik, Tasiusak, Sarfakajik, Kong Oscars Havn (Berlin)!

160. **Glyceria angustata** (R. Br.) Fr.

Lge. Consp. Fl. Groenl. p. 171 & 300, Ostenf. Fl. arctica p. 128. G. maritima var. arenaria, Berlin Kärlväxter p. 78.

Very rare; found only in a single place on a stony plain. 5 ctm. high, with fruit from the 26th of August till the 5th of September.

Kong Oscars Havn (Berlin)! Grönlænderpynt in Tasiusak.

The specimens collected by Dr. Berlin belong to the abovenamed species, as already observed by Gelert in Ostenf. Fl. arctica l. c.

161. **Poa glauca** M. Vahl.

Lge. Consp. Fl. Groenl. p. 172 & 300, Hartz Fanerog. p. 392.

Commonly distributed in table-land and on rocky steps. 10—15 ctm. high. Flowers in July, sets ripe fruit.

162. **Poa laxa** Haencke.

Gelert in Ostenf. Fl. arct. p. 123. P. laxiuscula (Bl.) Lge. Consp. Fl. Groenl. p. 174 & 301, Berlin Kärlväxter p. 80.

Very rare; on rocks and gravel on the beach.

Kingorsuak; Kong Oscars Havn (Berlin)!

Note. During my journey I unfortunately took no notice of this species, and as a consequence I made no special observations as to its distribution; it is therefore possible, especially as it is easily mistaken for *P. glauca* and *P. nemoralis* that specimens of it hide themselves under some of my notes on P. glauca.

163. Poa nemoralis L.

Lge. Consp. Fl. Groenl. p. 174 & 301, Berlin Kärlväxter p. 80.

var. *glaucantha* Blytt.

Rare; on fertile herby and grassy slopes. 20—50 ctm. high, incoherently tufted, forms a thick cover over smaller spots; flowers in July and August.

Kilikitak and Kakasuak near Kingorsuak, Kangerdluarsikajik, Sierak, Tasiusarsik in Angmagsalik Fjord, Sarfakajik, Kordlortok, Elvbakker, Kong Oscars Havn (Berlin)!

var. *pallida* Lge.

Very rare; in Archangelicetum; 25—30 ctm. high; flowers in July.

Akiliarisek, forms green-sward along the Archangelica brook, Amagâ.

164. Poa alpina L.

Lge. Consp. Fl. Groenl. p. 176 & 301, Berlin Kärlväxter p. 80, Hartz Fanerog. p. 392.

Commonly distributed in heath, on herby and grassy slopes, here and there in table-land, as well on the coast as in the interior. 15—60 ctm. high, flowers July—August, sets abundant ripe fruit, is often snowless in winter.

165. Poa pratensis L.

Lge. Consp. Fl. Groenl. p. 176 & 301, Berlin Kärlväxter p. 80, Hartz Fanerog. p. 392, Ostenf. Fl. arct. p. 121.

Common on herby slopes, in copses of willows and on fertile grassy slopes; more rare in heath, and only in the most fertile places; 20—60 ctm. high, flowers July—August, sets ripe fruit.

Kong Oscars Havn (Berlin)!, Tasiusak (Bay.)!

166. **Poa cenisia** All.

Gelert in Ostenf. Fl. arct. p. 122. P. flexuosa Lge. Consp. Fl. Groenl. p. 178 & 302, Berlin Kärlväxter p. 80.

Commonly distributed on herby slopes, in heath, on rocky steps and on grassy slopes, here and there in pools. 10—30 ctm. high, flowers in July—August, sets ripe fruit.

Note. It is hardly different as to species from *P. pratensis*, but is entered here, as it in typical form is easily recognizable from the other one and has a somewhat different and wider distribution. Especially it embraces more formations. It is certainly a more hardy and content form.

167. **Festuca ovina** L.

Lge. Consp. Fl. Groenl. p. 179 & 302, Rosenvinge Tillæg p. 735—736, Berlin Kärlväxter f. Groenl. p. 78, Hartz Fanerog. p. 392.

Commonly distributed everywhere in heath, on grassy slopes, in table-land and stony plains. 10—30 ctm. high. Flowers July—August.

β. *vivipara* L.

Common in humid localities in table-land.

γ. ad *F. heterophylla.*

In a welly hole abt. 2 mt. deep into which a brook disappears.

168. **Festuca rubra** L.

Lge. Consp. Fl. Groenl. p. 180 & 302, Berlin Kärlväxter p. 77.

Here and there on herby and grassy slopes and in grass field on fertile, well sheltered places. 15—50 ctm. high.

Kingorsuak, Ikerasausak, Sierak, Akiliarisek, Tasiusak, Kordlortok Sö, Sarfakajik, Kong Oscars Havn (Berlin)!

Most specimens belong to f. *arenaria* (Osb.), but all transitions to completely glabrous forms appear; viviparous forms are also found.

Fam. 38. Cupressaceae.

169. **Juniperus communis** L. β. **nana** Willd.

Rosenv. Till. p. 736, Ostenf. Fl. arct. p. 16. I. alpin. Clus., Lge. Consp. Fl. Groenl. p. 182 & 303, Hartz Fanerog. p. 392.

Espalier in table-land and heath.

Not rare in the interior of the district; rare in the coast region and much smaller. 10—30 ctm. high above the earth. The stems 30—120 ctm. long and up to 8 ctm. in diameter at the ground, often partly bark-stripped on the lower part. The leaves 5—8 mm. long, most often adpressed or incurvate, but sometimes in very favourable localities spread out. Flowers richly from the 15th of July till the 1st of August; the pollen forms often dense yellow clouds above the vegetation. Sets abundant ripe fruit often remaining 2—3 years on the plant.

Kap Wandel, Jærn Ö, Kingorsuak, Akiliarisek, Ikerasausak, Sierak, Tunok, Adloe, Sarfakajik, Kordlortok Sö, Amakâ, Amagâ, Elvbakker, Tasiusak (Bay)!

Fam. 39. Lycopodiaceae.

170. **Lycopodium Selago** L.

Lge. Consp. Fl. Groenl. p. 183 & 303, Berlin Kärlväxter p. 83, Hartz Fanerog. p. 392.

Here and there on herby slopes and in fertile heath. 5—20 ctm. high, with numerous sporangia in July.

Akiliarisek, Kingorsuak, Tunok, Sierak, Ikatek, Adloe at Kap Dan, Kordlortok, Sömands Fjæld at Tasiusak.

Most northern finding place 66° 18′ lat. N.

β. *appressa* Desf. (alpestre Berlin l. c., Lge. Consp. l. c.). In heath and table-land; more frequent than the main species and commonly distributed as well on the coast as in the interior.

171. **Lycopodium annotinum** L.

Lge. Consp. Fl. Groenl. p. 183, Ostenf. Fl. arct. p. 12.

Found only in the interior in 3 localities, but here very common in copses of willows. The creeping stems as long as 1 meter.

the upright shoots 10—15 ctm., the leaves spread, almost entire or at the point roughly sinuate or sparingly dentate. Transitions to f. *pungens* are commonly found. Cones common.

β. pungens Desf. (*β.* alpestre Hartm. Lge. l. c.).

Distributed over the whole of the district, but rare in the coast regions: common in the interior. Creeping stem, 50—60 ctm. long, upright shoots, 5—10 ctm. high, the leaves more or less adpressed, entire; the plant becomes often jointed looking because the leaves on a short stretch are closely adpressed, then more spread on a longer stretch etc. Cones are common.

Kangerdlugsuatsiak, Kangerdluarsikajik, Akiliarisek, Kingorsuak, Ikerasausak, Kingak Angmagsivik, Tunok, Sierak, Norsit, Elvbakker, Kordlortok, Amagâ.

172. **Lycopodium alpinum** L.

Lge. Consp. Fl. Groenl. p. 184 & 304, Hartz Fanerog. p. 392.

Appears sparingly, but distributed over the whole of the district, most frequent in the interior. In heath and on herby slopes. The creeping stems are 30—100 ctm. long, the upright shoots 3—7 ctm., spore-case bearings are seen in great quantities.

Nigertusok, Kangerdlugsuatsiak, Sarfak, Kingorsuak, Ikatek, Ikerasausak, Kingak Angmagsivik, Sierak, Tasiusarsik kitdlek, Adloe Dal at Kap Dan, Kordlortok, Amakâ, Amagâ, Elvbakker.

173. **Lycopodium complanatum** L.
β. **chamaecyparissus** (A. Br.) Rosenv.

Rosenvinge Tillæg p. 737. L. chamaecyparissus Lge. Consp. Fl. Groenl. p. 184, Ostenf. Fl. arctica p. 13.

Very rare, in shade among blocks of stone in heath. The creeping stem is up to 50—60 ctm. long, the upright shoots 6—8 ctm., sterile.

Kingak Angmagsivik, the north point of Ikerasausak. 66°—65° 52′ lat. N.

Fam. 40. Equisetaceae.

174. **Equisetum variegatum** Schleich.

Lge. Consp. Fl. Groenl. p. 191 & 308, Ostenf. Fl. arct. p. 9.

Rare, in humid sandy flats in the interior.

Kingorsuak, Sierak.

β. anceps Milde.

Rare and only in the interior in small brooks and pools on sandy ground.

Kingorsuak, Ikerasausak.

175. **Equisetum arvense** L.

Lge. Consp. Fl. Groenl. p. 191 & 308, Ostenf. Fl. arct. p. 10.

α. boreale Milde.

Rare, on sandy flats at river beds. 10—25 ctm. high, with fertile shoots on the 22th of June.

Kingorsuak, Ikerasausak, Sierak, Tasiusak.

β. decumbens C. F. W. Mey.

Rare, on sandy flats, with fertile shoots on the 22th of June.

Kingorsuak, Ikerasausak, Sierak, Ikatek.

γ. campestre F. Schultz.

Very rare, on a sandy flat, with fertile shoots on the 24th of July.

Kingorsuak.

δ. riparia.

In ponds, submerse, rather rare.

Kingorsuak, Tunok, Amakâ.

Fam. 41. Polypodiaceae.

176. **Aspidium Dryopteris** (L.) Baumg.

Ostenf. Fl. arctica p. 4. Polypodium Dryopteris L. Lge. Consp. Fl. Groenl. p. 185 & 304.

Here and there in copses of willows, on herby slopes and in heath, especially at the foot of rocks, grows gregariously. 10—30 ctm.

high. Small-leaved, low specimens with narrow leaf segments are found especially in sunlit fertile places in the Empetrum heath, while large broad-leaved (up to 13 ctm.) with very broad leaf segments are restricted to shady cracks in the rocks and the ground below large willow bushes. The leaves come out on the 15th—20th of June. The sporangia are developped about the 15th of July.

Akiliarisek, Kingorsuak, Ikerasausak, Misutok, Sierak, Tunok, Kuarmiut, Sarfakajik, Kordlortok Fjæld, Elvbakker.

Most northern finding place 66° 18′ lat. N.

177. **Aspidium Phegopteris** (L.) Baumg.

Ostenf. Fl. arctica p. 4. Polypodium Phegopteris L. Lge. Consp. Fl. Groenl. p. 185 & 304.

Rare; on herby slopes in the interior. 20—25 ctm. high with 2—4 leaves. As a rule sterile, only one specimen collected on the 12th of August has very spread and small undevelopped sporangia.

Akiliarisek, Kingorsuak, Misutok, Ikerasausak. 66° 18′—66° lat. N.

178. **Aspidium Lonchitis** (L.) Sw.

Lge. Consp. Fl. Groenl. p. 186 & 305, Berlin Kärlväxter p. 82, Ostenf. Fl. arctica p. 6.

Here and there, but not common at the foot of rocks on herby slopes. 15—30 ctm. high with numerous leaves and many sporangia.

Nigertusok, Kakasuak near Kingorsuak, Misutok, Tunok, Tasiusarsik in Angmagsalik Fjord, Sarfakajik, Kong Oscars Havn (Berlin)! Most northern finding place 66° 18′ lat. N.

179. **Cystopteris fragilis** (L.) Bernh.

Lge. Consp. Fl. Groenl. p. 188 & 306, Berlin Kärlväxter p. 82, Hartz Fanerog. p. 392, Ostenf. Fl. arctica p. 6.

Common on herby slopes, in copses of willows, on rocky steps and in humid fertile heath. 15—30 ctm. high. The leaves

come out from the 15^{th} of June, usually with sporangia in July—September.

Commonly distributed as well on the coast as in the interior.

180. **Asplenium viride** Huds.

Lge. Consp. Fl. Groenl. p. 305, Berlin Kärlväxter p. 81, Ostenf. Fl. arctica p. 81.

Very rare; in humid shady cracks in the rocks, on herby slopes. Numerous, 5—10 ctm. long leaves shoot out from the rhizome, squeezed into fine cracks. Almost all the 4—5 mm. long, oval or rhombic segments are sporuliferous (from the 26^{th} of July till the 4^{th} of September).

Kakasuak near Kingorsuak 66° 8′ lat. N., Kordlortok 65° 38′, Kong Oscars Havn (Nath.)!

181. **Woodsia ilvensis** (L.) R. Br.

Gelert in Ostenf. Fl. arctica p. 7.

α. rufidula (Michx.) Kock.

W. ilvensis R. Br. Lge. Consp. p. 188 & 307, Hartz Fanerog. p. 302.

Rather common on herby slopes, rocky steps and in heath. 5—12 ctm. high, thickly tufted, with many leaves. Begins coming out on the 15^{th} of June', almost every leaf bears numerous sporangia.

Common as well on the coast as in the interior.

β. alpina (Bolton) Aschers. & Gräbn.

W. hyperborea Lge. Consp. p. 189.

Here and there in the interior in cracks on herby slopes and on rocky steps.

Kap Wandel, Nigertusok, Kilikitak, Kakasuak and in several places near Kingorsuak, Tunok, Kilitilik near Tasiusak.

γ. glabella (R. Br.) Trautw.

W. glabella R. Br. Lge. Consp. p. 189.

Very rare and only in the interior on rocky steps, 3—5 ctm. high with numerous sporangia in July.

Kilikitak and Falke Fjæld near Kingorsuak, Misutok, 66° 10′—66° lat. N.

Fam. 42. Ophioglossaceae.

182. **Botrychium Lunaria** (L.) Sw.

Lge. Consp. Fl. Groenl. p. 190 & 307, Berlin Kärlväxter p. 83, Ostenf. Fl. arctica p. 7.

Very rare; on herby slopes, just below the rocky walls. 9 ctm. high, with a 2 ctm. long, sterile, 9 lobate leaf; the fertile leaves 5 ctm. long, of these the upper ones 2 ctm. with incurvate, 2—8 m. m. long sporangia bearing lobes. The sporangia were closed on the 13th of August.

Kong Oscars Havn (Berlin)!, Amakâ at Kordlortok, 65° 35′—38′ lat. N.

183. **Botrychium lanceolatum** (Gmel.) Ångstr.

Lge. Consp. Fl. Groenl. p. 190 & 307, Ostenf. Fl. arctica p. 2.

Very rare; on rocky steps above herby slopes. 10—12 ctm. high with developped, but not open sporangia on the 14th—18th of July.

Akiliarisek 66° 18′ and Tasiusarsik in Angmagsalik Fjord 65° 48′ lat. N.

20—6—1906.

VII.

Species nova Marsupellae, muscorum generis.

Auctore **C. Jensen.**

1906.

Marsupella groenlandica C. Jens. nov. sp.

Dioica, cæspites densos et nigros formans; planta ad 6 ctm. alta et 1 mm. lata; caulis e parte subterranea procumbente et defoliata erectus vel suberectus, ad 0,20 mm. latus, rigidus, firmus, stoloniferus, pauciramosus, ramis ventralibus e basi curvata erectis; stolones e partibus inferioribus caulis sat numerosi, longi, horizontales vel inflecti, leniter colorati, efoliati, una cum partibus inferioribus caulis radicellulas rubras gerentes. Cellulae corticales majores, rectangulares vel quadratae, in sectione transversa rotundae et ovatae, parietibus mediocriter incrassatis; cellulae infra stratum corticale elongatae, angustae, valde incrassatae, prosenchymaticae, 2—3. stratosae; cellulae centrales numerosissimae, parenchymaticae, elongatae, parietibus mediocriter incrassatis. Folia inferiora parva, remota, superiora magnitudine crescentia, densiora, crassa et rigida, transversim affixa, semiamplexa, squarroso-patula, non decurrentia, late ovata, maxime concava et subcochleariformia, apice late emarginato vel rotundato, sæpissime irregulariter secta, præcipue in foliis anosioris, margine non reflexo; cellulae rotundato-polygonatae, basilares majores, marginales et apicales minores et rotundato-quadratae, ad angulos magis et distincte triangulariter incrassatæ, parietibus lateris dorsalis folii valde incrassatis, ceteris vix incrassatis; cuticula laevis. Flores ♀ et fructus desunt.

Androecium apicale, bracteae 5—7, densae, parum minores quam folia, antheridia singula in axilla.

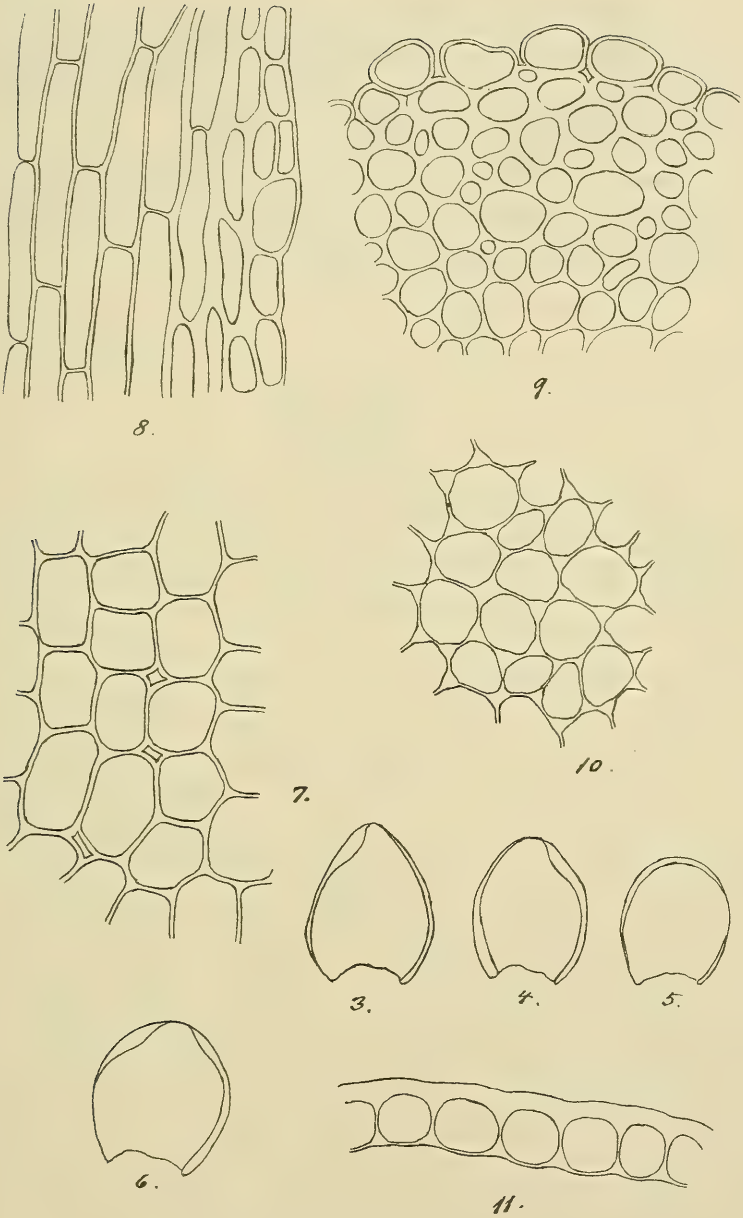
1.

Fig. 1. *Marsupella groenlandica* C. Jensen. Planta mascula in magnitudine naturali.

♂

2.

Fig. 2. *Marsupella groenlandica* C. Jensen. Ramulus masculus (c. $^{12}/_{1}$).



Marsupella groenlandica C. Jensen.

Fig. 3—6. Folia ($^{28}/_1$). — Fig. 7. Cellulae corticales ($^{350}/_1$). — Fig. 8. Sectio longitudinalis caulis ($^{350}/_1$). — Fig. 9. Sectio transversalis caulis ($^{350}/_1$). — Fig. 10. Cellulae folii ($^{350}/_1$). — Fig. 11. Sectio transversalis folii ($^{350}/_1$).

Species peculiaris, habitu et magnitudine *Cesiae revolutae* et formis certis *Marsupellae emarginatae* similis, characteribus *Marsupellae aquaticae* affinis, sed facile distinguitur præprimis foliis cochleariformibus, subintegris — integris.

Habitat: Groenlandia occidentalis; Disco (Lyngmarken), 1898, leg. M. P. Porsild. Groenlandia orientalis; Hurry Inlet (Ryders Dal), 1900, leg. C. Kruuse.

28—11—1906.

VIII.

List

of the Hepaticae and Sphagnales found in East-Greenland between 75° and 65° 35′ lat. N. in the years 1898—1902.

By

C. Jensen.

1906.

The mosses mentioned in this list were brought home from the following expeditions, viz:

Den danske Baadekspedition 1898—99,
Den svenske Ekspedition 1899,
Den danske Baadekspedition 1900,
Den danske Ekspedition 1901—1902.

The collectors are chiefly P. Dusén, N. Hartz and C. Kruuse. The mosses collected by P. Dusén have already been published in Öfversigt af Kongl. Vetensk.-Akad. Förhandlingar, 1900, no. 6 (Hepaticae) and in Bihang till K. Svenska Vet.-Akad. Handlingar, Band 27, Afd. III, no. 1 (Sphagna). The places where the mosses have been taken are:

	Lat. N.	Long W. of Grw.
Adloe	65° 31′	37° 5′
Akiliarisek	66° 18′	37° 35′
Amakâ (Kap Hörring)	65° 38′—39′	37° 34′
Anava	65° 36′	37° 10′
Bonteko Ö	73° 10′	
Bræfjord near Kap Wandel	66° 19′	
Canning Land	71° 45′	
Clavering Ö, Kap Mary	74° 10′	
Depot Ö	66° 7′	35° 31′
Elvbakker	65° 37′	37° 34′—40′
Eskimo Ö	66° 15′	35° 15′
Fleming Inlet	71° 40′	
Grönlænderpynt near Tasiusak	65° 37′	37° 33′
Hold with Hope	73° 30′	
Hurry Inlet	70° 51′	
Ikatek	65° 56′	36° 34′

	Lat. N.	Long W. of Grw.
Ikerasausak	66° 0'—5'	37° 20'—30'
Ingmikertorajik	65° 54'	37°
Jærn Ö	65° 57'	35° 54'
Kaiser Franz Joseph Fjord	73° 30'—73° 10'	
Kajarsak	66° 49'	
Kakasuak near Kingorsuak	66° 5'—10'	37° 5'—15'
Kangerdluarsikajik	65° 57'	36° 10'
Kangerdlugsuatsiak	66° 16'—19'	35° 17'—27'
Kap Borlase Warren	74° 15'	
Kap Dalton	69° 25'	
Kap Franklin	73° 15'	
Kap Giesecke	74° 50'	
Kap Greg	70° 58'	
Kap Hildebrandt	66° 47'	
Kap Parry	72° 30'	
Kap Seaforth	71° 50'	
Kap Stewart	70° 25'	
Kap Wandel	66° 18'	34° 46'
Kap Warming	67° 1'—2'	
Kingorsuak	66° 5'—10'	37° 5'—15'
Kuarmiut	65° 52'	37° 35'
Langö (Ikerasarmiut)	67° 4'	
Lille Pendulum Ö	74° 30'	
Lille Ö	66° 58'	
Midtpynt n. Kangerdlugsuatsiak	66° 15'	35° 20'
Misutok	66° 0'	36° 58'
Nanertalik	66° 36'	
Nordfjord near Tasiusak	65° 37'	37° 33'
Nordostbugt	71° 17'	
Nordre Skerasak	65° 56'	
Norsit	65° 33'	37° 8'
Nualik	67° 16'	
Robertson Ö in Sofia Sund	73° 5'	
Ryders Dal in Hurry Indlet	70° 51'	
Röhss Fjord	72° 40'	
Sarfak	65° 55'	36° 15'
Sierak	65° 56'	37° 5'
Smalsund	65° 59'	35° 50'
Sten Ö	66° 3'	35° 31'

	Lat. N.	Long W. of Grw.
Söndre Aputitek	67° 16′	
Tasiusak	65° 37′	37° 33′
Tasiusak near Kap G. Holm	66° 45′	
Tasiusarsik kidlek	65° 37′	37° 15′
Tasiusarsik in Angmagsalik Fjord	65° 47′	37° 4′
Tunok	65° 53′	36° 45′—50′
Turner Sund	69° 45′	
Turner Ö	69° 45′	
Utorkarmiut	65° 54′	36° 18′
Vahls Fjord	66° 22′	
Odesund	66° 10′	35° 23′

Fam. 1. Hepaticae.

1. **Marchantia polymorpha** L.

Tunok (Kruuse).

var. *alpestris* Nees.

Kap Seaforth in Fleming Inlet, on mew-hillocks, gonid. (Hartz); Ikerasausak, in Archangelicetum, ♂, gonid.; Sierak Dal, in herby slopes; Ingmikertorajik, fert.; Kuarmiut, gonid.; Amakâ, on river sides, gonid.; Elvbakker; Tasiusak (Kruuse).

This variety comes nearest to var. *mamillata* Hagen, from which it only disagrees in having few mamillae.

2. **Chomocarpon commutatus** (Lindenb.) Lindb.

Preissia commutata Nees.

Bonteko Ö, ster. (Dusén); Kap Seaforth, on the beach; Fleming Inlet Kingua; Nordostbugt, in bogs (Hartz); Kakasuak near Kingorsuak (Kruuse).

3. **Asterella pilosa** (Wahlenb.) Trevis.

Lille Pendulum Ö, fert.; Clavering Ö, Kap Mary, fert. (Dusén); Kakasuak near Kingorsuak, 420 mt. above the level of the sea, fert.; Kangerdluarsikajik, fert.; Tunok, fert.; Elvbakker, fert. (Kruuse).

4. **Peltolepis grandis** Lindb.

Bræfjord near Kap Wandel; Kap Wandel; Akiliarisek, among *Salix arctica* (Kruuse).

5. **Sauteria alpina** (N. B.) Nees.

Kap Seaforth; Canning Land, fert. (Hartz).

6. **Clevea hyalina** (Somm.) Lindb.

Kap Franklin, fert. (Dusén).

7. **Odontoschisma Macounii** Aust.

O. tessellatum (Bergg.) C. Jens.

Clavering Ö, Kap Mary; Kap Franklin; Röhss Fjord; Hurry Inlet, on the field near Ryders Elv (Dusén, Kruuse); Turner Ö (Koch).

8. **Hygrobiella laxifolia** (Hook.) Spruce.

Jærn Ö (Kruuse).

9. **Cephalozia albescens** (Hook.) Kaal.

Pleuroclada albescens Spruce.

Hurry Inlet (Dusén); Smalsund; Jærn Ö (Kruuse).

var. *islandica* (Nees) Kaal.

Turner Sund (Hartz & Kruuse); Tunok; Ikerasausak, on heath; Tasiusak, in bogs at Nordfjord (Kruuse).

10. **Cephalozia bicuspidata** (L.) Dum.

Kap Parry; Hurry Inlet (Dusén); Kap Stewart (Hartz, Dusén); Turner Sund; Midtpynt at Kangerdlugsuatsiak; Ikerasausak; Jærn Ö (Kruuse).

var. *cavifolia* Arnell.

Fleming Inlet; Liverpool Kyst, southern part (Kruuse); Turner Sund (Hartz & Kruuse); Kap Dalton (Hartz); Nualik, Døde Hus Pynt; Kingorsuak, on sandy flats; Ikerasausak; Sierak Dal, on sandy flats; Ingmikertorajik (Kruuse).

Everywhere in arctic regions this species has an inclination to get concave leaves, which are smaller and with shorter lobes. The colour is commonly more or less red-brown and dark, the leaf-cells and the cuticular-cells of the stem are shorter. There exists howewer a gradual transition between these forms and the main-species.

11. **Cephalozia media** Lindb.

Kap Parry (Dusén).

12. **Cephalozia pleniceps** (Aust.) Lindb.

Clavering Ö, Kap Mary, perianth. (Dusén); Hurry Inlet, near Ryders Elv, fert. (Kruuse); Turner Ö (Koch); Turner Sund, fert. (Hartz & Kruuse); Akiliarisek, among Salix arctica (Kruuse).

13. **Cephalozia divaricata** (Franc.) Dum.

Kap Giesecke; Lille Pendulum Ö; Clavering Ö, Kap Mary; Robertson Ö in Sofia Sund (Dusén); Nordostbugt, in bogs, ♀, gonid. (Hartz); Hurry Inlet, ♂ and ♀, (Dusén); Turner Ö (Koch); Turner Sund, partly forma *elongata*, (Kruuse); Kap Dalton (Hartz); Nualik, partly in a derelict Eskimo-house; Ingmikertorajik; Tunok, on sandy ground; Tasiusak (Kruuse).

var. *incurva* Lindb.

Nordostbugt (Hartz); Turner Sund; Depot Ö, in old tombs (Kruuse).

var. *grimsulana* (Jack) Kaal.

Hurry Inlet, Ryders Dal, perianth. (Kruuse).

This species varies in the same manner as *Cephalozia bicuspidata*, but apparently in still higher degree. Probably one or other undescribed species is hidden amongst all these more or less disagreeing forms.

14. **Cephalozia striatula** C. Jens.

Fleming Inlet (Hartz); Hurry Inlet, Ryders Dal (Kruuse); Turner Sund (Hartz & Kruuse).

15. Cephalozia asperifolia C. Jens.

Hurry Inlet, Ryders Dal; Nualik, in a derelict Eskimo-house (Kruuse).

16. Ptilidium ciliare (L.) Nees.

Röhss Fjord (Dusén); Vahls Fjord; Ödesund; Jærn Ö; Tasiusak (Kruuse).

17. Chandonanthus setiformis (Ehrh.) Lindb.

Blepharostoma setiforme Lindb.

Vahls Fjord (Kruuse).

18. Blepharostoma trichophyllum (L.) Dum.

Kap Giesecke; Lille Pendulum Ö; Clavering Ö, Kap Mary; Kap Franklin; Röhss Fjord; Kap Parry (Dusén); Fleming Inlet (Hartz & Kruuse); Nordostbugt, in bogs (Hartz); Hurry Inlet, Ryders Dal (Dusén, Kruuse); Kap Stewart (Hartz, Dusén); Turner Sund (Hartz & Kruuse); Kap Dalton (Hartz); Midtpynt at Kangerdlugsuatsiak (Kruuse).

19. Anthelia julacea (L.) Dum.

Fleming Inlet; Nordostbugt, in bogs (Hartz); Hurry Inlet, Ryders Dal (Kruuse); Turner Sund (Hartz & Kruuse); Kingorsuak, on sandy flats; Ikerasausak, on sandy flats; Sierak Dal, on sandy flats; Kordlortok Sö; Elvbakker, in bogs; Grönlænderpynt at Tasiusak, on stony flats (Kruuse).

20. Anthelia nivalis (Sw.) Lindb.

Clavering Ö, Kap Mary; Röhss Fjord; Hurry Inlet (Dusén); Liverpool Kyst, southern part (Kruuse); Kap Stewart (Hartz, Dusén); Ikerasausak, partly in Archangelicetum, partly on damp grassy ground; Ingmikertorajik; Tasiusarsik in Angmagsalik Fjord (Kruuse).

21. Martinellia Bartlingii (Nees).

Martinellia Carestiae (D. N.) Lindb. ap. C. Jensen. Mosser fra Østgrønland, p. 376.

Hurry Inlet, Ryders Dal (Kruuse); Turner Ö (Koch); Tasiusak (Kruuse).

22. **Martinellia subalpina** (Nees) Lindb.

Jærn Ö (Kruuse).

23. **Martinellia irrigua** (Nees) Lindb.

Tunok (Kruuse).

24. **Martinellia uliginosa** (Sw.) Lindb.

Jærn Ö (Kruuse).

25. **Martinellia curta** (Mart.) Lindb.

Depot Ö, in old tombs; Tasiusak (Kruuse).

26. **Martinellia rosacea** (Cord.) Lindb.

Hurry Inlet (Dusén); Elvbakker (Kruuse).

27. **Arnellia fennica** (Gottsch.) Lindb.

Southbya fennica Gottsch.

Kap Borlase Warren (Dusén, Hartz); Gaaseland in Scoresby Sund (Hartz)[1].

28. **Aplozia sphaerocarpa** Dum. var. **lurida** (Dum.)

Jungermania nana Nees.

Nordostbugt, in bogs (Hartz); Hurry Inlet, Ryders Dal, perianth. (Kruuse).

29. **Jungermania quinquedentata** Huds.

Lille Pendulum Ö; Clavering Ö, Kap Mary; Kaiser Franz Joseph Fjord, *forma gracilis*; Röhss Fjord, partly *forma gracilis*; Kap Parry (Dusén); Fleming Inlet; Nordostbugt, in bogs (Hartz); Hurry Inlet, Ryders Dal (Dusén, Kruuse); Kap Stewart, *forma gracilis* (Dusén); Turner Ö (Koch); Turner Sund, partly *forma gracilis* (Hartz & Kruuse); Kap Dalton (Hartz); Lille Ö (Kruuse).

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[1] *Mylia Taylori* has not been found in East-Greenland, the very unimportant sample, referred by me in «Mosser fra Östgrönland» to this species, belongs to *Arnellia fennica*.

var. *turgida* Lindb.

Hurry Inlet (Hartz, Dusén).

30. **Jungermania lycopodioides** Wall.

Tasiusak (Kruuse).

31. **Jungermania Floerkei** W. M.

Röhss Fjord (Dusén)[1]; Ödesund; Misutok; Ingmikertorajik; Tasiusak; Anava; Adloe (Kruuse).

32. **Jungermania Baueriana** Schiffn.

Lille Pendulum Ö (Dusén); Canning Land; Fleming Inlet (Gartz); Hurry Inlet (Dusén); Nualik; Bræfjord near Kap Wandel, partly *forma viridis* on the rhizome of *Cystopteris fragilis*; Akiliarisek, among *Salix arctica*; Depot Ö, partly in old tombs; Smalsund; Sarfak Pynt; Ingmikertorajik; Tasiusarsik in Angmagsalik Fjord; Adloe (Kruuse).

This species, described by V. Schiffner in „Lotos", 1903, no. 7, is widely distributed. A part of *Jungermania Floerkei* and of *J. lycopodioides* in the former moss-lists from Greenland certainly belong to *J. Baueriana*.

33. **Jungermania Binsteadii** Kaal.

Kaiser Franz Joseph Fjord; Röhss Fjord (Dusén).

I have had the opportunity of seeing this species in great quantities, during my stay in the Sarjek-Mountains in Lule-Lapmark. It is therefore of no doubt to me, that it is a proper species, which not at all is allied to *Jungermania quinquedentata*, but comes nearest to *Jungermania gracilis*.

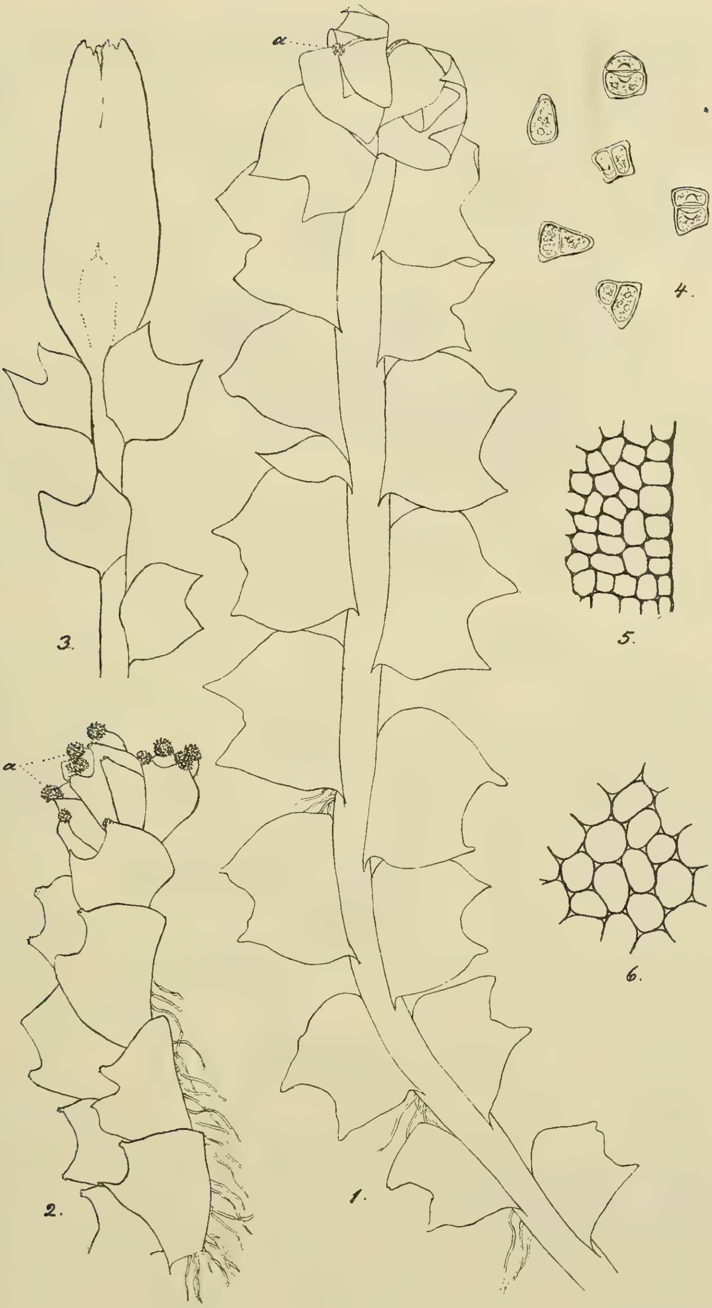
34. **Jungermania quadriloba** Lindb.

Nordostbugt, in bogs (Hartz); Hurry Inlet (Dusén).

35. **Jungermania incisa** Schrad.

Kap Greg, creeping on compact *Sphagnum Girgensohnii* (Hartz).

[1] The specimens from Lille Pendulum Ö and Hurry Inlet (Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar, 1900, no. 6) belong to *J. Baueriana*.



Jungermania alpestris var. *major*.

Fig. 1—2. Partes superiores plantarum gonidiiferarum, a. congregationes gonidiarum ($^{20}/_1$). Fig. 3. Pars superior plantae femineae cum perianthio ($^{20}/_1$). Fig. 4. Gonidia ($^{260}/_1$). Fig. 5. Textura cellularis limbi superioris folii ($^{116}/_1$). Fig. 6. Textura cellularis mediae folii ($^{116}/_1$).

36. **Jungermania elongata** Lindb.

Fleming Inlet (Kruuse).

37. **Jungermania socia** Nees.

Röhss Fjord (Dusén); Turner Sund, perianth. (Hartz & Kruuse); Ingmikertorajik, gonid. (Kruuse).

38. **Jungermania alpestris** Schleich.

Röhss Fjord (Dusén); Fleming Inlet; Liverpool Kyst, southern part (Kruuse); Kap Stewart (Dusén); Turner Sund (Hartz & Kruuse); Kap Dalton (Hartz); Nualik, partly in a derelict Eskimo-house; Lille Ö; Kap Hildebrandt, eastside; Akiliarisek; Midtpynt at Kangerdlugsuatsiak; Ödesund; Kingorsuak, on sandy flats, f. *amphigastriata*; Ikerasausak, partly ♂ in Archangelicetum; Misutok; Smalsund; Ingmikertorajik, gonid.; Jærn Ö; Tasiusarsik in Angmagsalik Fjord; Nordfjord at Tasiusak, in bogs; Tasiusak (Kruuse).

var. *major*, v. nov.

Hurry Inlet, ♂ and ♀, gonid. (Dusén); Kap Brewster, gonid. (Hartz).

Amongst the numerous forms of this species one form occurs twice as large, usually of green colour and with larger leaf-cells. I have called it *Jungermania alpestris α latior* Nees[1]). Arnell asserts that the *α latior* Nees is *Jungermania Wenzelii* Nees, I therefore prefer to call this strong form var. *major*.

39. **Jungermania Wenzelii** Nees.

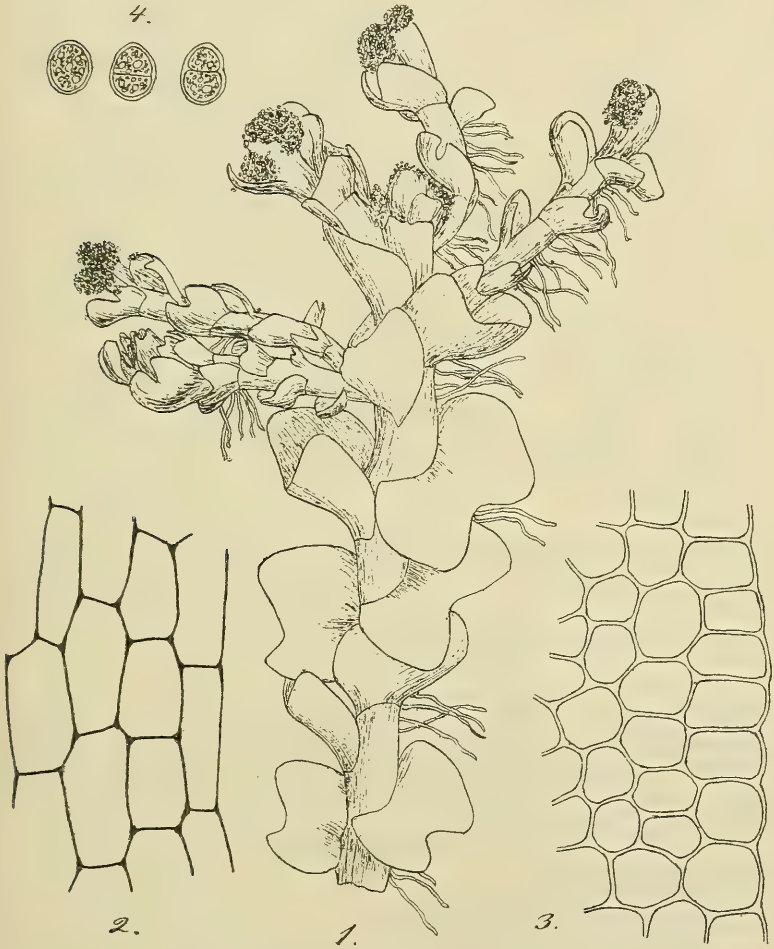
Tasiusak (Kruuse).

40. **Jungermania globulifera** n. sp.

Dioica, cæspites humiles et laxos formans, rufescens, perpusilla, pro parte in substrato occulta; caulis erectus vel suberectus, ad 8 mm. longus et 0·26 mm. latus, simplex vel ramosus, mediocriter fragilis, postice sat dense radicellifer; cellulis corticis rectangulis, tenui- et rufescente membranatis. Folia ad 0·42 mm. longa et 0·65 mm.

[1]) Öfversigt af K. Vetensk.-Akad. Förhandlingar, 1900, no. 6, p. 800.

lata, caule duplo latiore, mollia, tenuia, sat remote dissita, patentia, oblique affixa, ad anticum vergentia, non decurrentia, vel in antico paullulum decurrentia, rotundate rectangularia, bilobata; incisura $^1/_3$—$^1/_2$, lata, obtusa, interdum modice gibba, lobis ovatis, obtusis



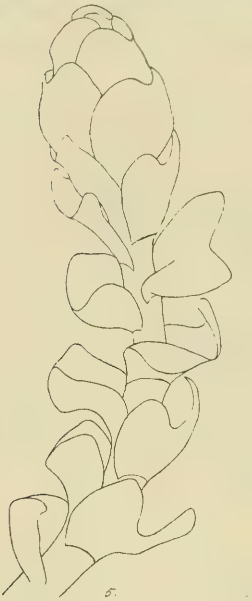
Jungermania globulifera C. Jensen.
Fig. 1. Planta sterilis gonidiifera ($^{30}/_{1}$). Fig. 2. Cellulae corticalis ($^{380}/_{1}$). Fig. 3. Cellulae folii ex margine lobi ($^{380}/_{1}$). Fig. 4. Gonidia ($^{380}/_{1}$).

vel rotundatis, æquimagnis vel inæquimagnis (lobus posticus sæpissime major), sæpe conniventibus. Cellulae foliorum sat parvae

(loborum 0·02—0·026 mm. in diametro), fere æquimagnae, rotundate-quadratae, modice chlorophylliferae, pellucidae, membranis rufescentibus, sat tenuibus, ad angulos non vel leniter incrassatis; cuticula laevis.

Foliola nulla. Flores ♀ et fructus desunt. Planta ♂ parum minor; androecium terminale, ovatum; bracteae foliis majores, latissimae et valde concavae, dense imbricatae; incisura brevis, obtusa, lobis rotundatis, æquimagnis; antheridia 2 in axilla. Gonidia globosa — ovalia, uni — bicellularia, nunquam incrassata et angulata, 0·017—0·019 mm. lata et 0·019—0·022 mm. longa, rufa, anosiora brunnea, in apicibus foliorum congregationes formantia.

Ab *Jungermania alpestri* distinguenda cellulis foliorum tenui-membranatis, lobis obtusis—rotundatis, gonidiis globuliformibus, non incrassato—angulatis, non cornutis.



Jungermania globulifera C. Jensen. Planta mascula ($^{22}/_{1}$).

Habitat in solo arenaceo ad Kingorsuak et Sierak Dal, ♂ (Kruuse), sociis *Bryis*, *Pohliis*, *Polytrichis*, *Anthelia julacea*, *Cephalozia bicuspidata* var. *cavifolia*.

41. **Jungermania ventricosa** Dicks.

Hurry Inlet, Ryders Dal (Kruuse); Turner Sund, perianth. (Hartz & Kruuse); Ikerasausak, on heaths, perianth. and gonid.; Kap Hildebrandt, the eastside; Tasiusak near Kap G. Holm; Ingmikertorajik; Elvbakker; Tasiusarsik in Angmagsalik Fjord; Tasiusarsik (Kruuse).

var. *porphyroleuca* (Nees).

Röhss Fjord (Dusén); Ingmikertorajik (Kruuse).

The forms by me referred to "*porphyroleuca*" are all without perianth, I therefore have been unable to decide certainly whether they belong to Schiffners *Lophozia porphyroleuca* ("Lotos" 1903, no. 7). By this reason I prefer to call them "variety" of *Jungermania ventricosa*.

42. **Jungermania Mülleri** Nees.

Röhss Fjord; Hurry Inlet (Dusén).

43. **Jungermania Hornschuchiana** Nees.

J. Mülleri Nees, var. bantryensis (Hook.) Lindb.

Hurry Inlet, perianth. (Dusén).

44. **Jungermania heterocolpa** Thed.

Nordostbugt, in bogs (Hartz); Hurry Inlet, gonid. (Dusén).

45. **Jungermania inflata** Huds.

Hurry Inlet, Ryders Dal; Smalsund (Kruuse).

46. **Jungermania Kunzeana** Hub.

Kap Dalton (Hartz); Ingmikertorajik; Tunok; Tasiusak (Kruuse).

47. **Jungermania groenlandica** Nees.

Hurry Inlet, ♂ (Dusén).

48. **Jungermania polita** Nees.

Nordostbugt, in bogs (Hartz).

49. **Jungermania minuta** Cranz.

Lille Pendulum Ö; Kaiser Franz Joseph Fjord; Röhss Fjord; Kap Parry, fert.; Hurry Inlet (Dusén); Turner Sund; Ingmikertorajik; Tasiusak (Kruuse).

50. **Nardia obovata** (Nees) Carr.

Jungermania obovata Nees. Southbya obovata Lindb.

Jærn Ö; Elvbakker, in a well-like hole, wherein a rile disappears (Kruuse).

51. **Nardia scalaris** (Schrad.) Gr.

Alicularia scalaris Corda.

Jærn Ö (Kruuse).

52. **Nardia minor** (Limpr.) Arn.

Alicularia minor Limpr., Nardia haematosticta (Nees) Lindb.

Turner Ö (Koch).

53. **Marsupella aquatica** (Lindb.) Schiffn. var. **gracilis** v. n.

Gracilis, elongata, atrata, remotifolia, cellulis foliorum minoribus.

Habitat ad Tasiusak, in fundo aquulae ad 2—6 mt. profundae inundata (Kruuse).

54. **Marsupella groenlandica** C. Jens.

Hurry Inlet, Ryders Dal (Kruuse).

55. **Marsupella condensata** (Ångstr.) Arn.

Gymnomitrium condensatum Ångstr.

Tasiusarsik in Angmagsalik Fjord, ♂ (Kruuse).

56. **Marsupella apiculata** Schiffn.

Kordlortok Sö (Kruuse).

57. **Cesia revoluta** (Nees) Lindb.

Sarcoscyphus revolutus Nees.

Hurry Inlet (Dusén).

58. **Cesia corallioides** (Nees) Carruth.

Gymnomitrium corallioides Nees.

Hold with Hope; Robertson Ö in Sofia Sund; Röhss Fjord; Kap Parry; Kap Stewart (Dusén); Jærn Ö; Tasiusak (Kruuse).

59. **Cesia concinnata** (Lightf.) Gr.

Gymnomitrium concinnatum Corda.

Robertson Ö in Sofia Sund; Röhss Fjord; Kap Parry (Dusén); Turner Sund, ♀ (Kruuse); Kap Dalton (Hartz); Jærn Ö; Tasiusak (Kruuse).

60. **Prasanthus suecicus** (Gottsch.) Lindb.

Gymnomitrium suecicum Gottsche.

Turner Sund, fert. (Hartz).

61. **Riccardia pinguis** (L.) Gr.

Aneura pinguis Dum.

Kap Giesecke; Kap Borlase Warren; Clavering Ö, Kap Mary (Dusén).

Fam. 2. Sphagnales.

62. **Sphagnum inundatum** Russ.

S. subsecundum Nees, var. inundatum (Russ.) C. Jens.

Hurry Inlet; f. *ano-drepanoclada* (Dusén).

63. **Sphagnum squarrosum** Crome.

Hold with Hope, f. *subimbricata, ano-dasyclada* (Dusén).

64. **Sphagnum teres** (Schimp.) Ångstr.

Nordostbugt, in bogs (Hartz); Midtpynt at Kangerdlugsuatsiak, f. *orthoclada*; Kingorsuak, the westside, f. *anoclada*; Jærn Ö, f. *squarrosula*; Kangerdluarsikajik; Tunok, f. *ano-dasyclada*; Kuarmiut, f. *spuarrosula*; Tasiusarsik in Angmagsalik Fjord, f. *anoclada*; Amakå, on the border of a pond; Tasiusak; Adloe, f. *anodasyclada* and f. *dasyclada, viridis* (Kruuse).

65. **Sphagnum fimbriatum** Wils.

Nordostbugt, in bogs (Hartz); Hurry Inlet, f. *anoclada* (Dusén); Kap Dalton, f. *orthoclada* (Kruuse).

66. **Sphagnum Girgensohnii** Russ.

Nordostbugt, f. *orthoclada*; Kap Greg, f. *anoclada* and f. *orthoclada* (Hartz); Hurry Inlet Kingua, f. *ano-* et *orthoclada*; Kap Dalton, f. *anoclada*; Akiliarisek, among *Salix arctica*, f. *anoclada*; Ikerasausak, on rills in the heath, f. *orthoclada*; Misutok, f. *anoclada* and f. *dasy-mastigoclada*; Tasiusarsik in Angmagsalik Fjord, f. *anoclada*; Anava; Tasiusak (Kruuse).

67. **Sphagnum Russowii** Warnst.

Tasiusak, f. *orthoclada, tenella* (K.).

68. Sphagnum Warnstorfii Russ.

Nordostbugt, in bogs (Hartz); Nualik, f. *anoclada, pallescens*; Akiliarisek, among *Salix arctica*; Eskimo Ö, f. *ano-dasyclada, pallescens*; Ikerasausak, on rills in the heath; Misutok; Sarfak; Tunok, f. *mastigoclada, viridis*; Adloe, f. *anoclada* and f. *dasyclada, versicolor* (Kruuse).

69. Sphagnum rubellum Wils.

Kap Warming, f. *flavo-viridis*; Kangerdluarsikajik (Kruuse).

70. Sphagnum acutifolium Ehrh.

Hurry Inlet, f. *gracilis,* f. *ortho-dasyclada, pallescens,* f. *anoclada,* f. *orthoclada* and f. *ano-dasyclada* (Dusén).

71. Sphagnum riparium Ångstr.

Ikerasausak, f. *dasyclada*; Norsit; Tunok, f. *submersa*; Amakâ, on the border of a pond (Kruuse).

72. Sphagnum balticum Russ.

Hurry Inlet Kingua, f. *orthoclada* (Kruuse).

73. Sphagnum cuspidatum Ehrh. var. Kruusei v. n.

Gracilis, pallide-fuscescens. Caulis tenuis, tegumento corticali e triplici et quadruplici strato cellularum formato, cellulis sat magnis, strato lignoso fusco; folia caulina triangulari-lingulata, sat magna, in parte superiore fibrosa et porosa, vel triangulari-ovata, ad basim fibrosa, in hac re folia ramulina subsimilia; limbo marginali inferne dilatato. Folia ramulina e basi ovata longe acuta, subsecunda, poris ut in formis emersis *Sphagni cuspidati* typici; cellulae chlorophylliferae trigono-ovatae, in latere concavo folii subliberae. Flores et fructus desunt.

Habitat ad Tasiusak (Kruuse).

Sphagnum cuspidatum was not hitherto recorded from Greenland. The here described form disagrees from the main-species by the brown wood-cylinder. Perhaps a proper species? The sample is very small.

28—11—1906.

Indhold.

14,490

Meddelelser om Grønland,

udgivne af

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II. Undersøgelser i Julianehaabs (Sandstenen og Syeniten), Holstensborgs og Egedesmindes Distrikter i 1876 og 1879 ved **Steenstrup, Kornerup, Jensen, G. Holm og Lorenzen.** Med 8 Tavler. 1881. Kr. 6. Udsolgt.

III. Conspectus Florae Groenlandicae. 1ste og 2den Afdeling: Fanerogamer og Karsporeplanter ved **Joh. Lange**; Grønlands Mosser ved **Joh. Lange og C. Jensen.** 1880—87. 3die Afdeling: Lichener, Svampe og Havalger, samt Tillæg til Fanerogamer og Karsporeplanter ved **Deichmann Branth, Grønlund, Kolderup Rosenvinge og Rostrup.** Med 2 Tavler og 3 Kort. 1887—94. Kr. 14.

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IX—X. Den østgrønlandske Expedition i Aarene 1883—1885 (Angmagsalik) ved **G. Holm, V. Garde, Knutsen, Eberlin, Steenstrup, S. Hansen, Lange, Rink, Willaume-Jantzen og Crone.** Med 59 Tavler. 1888—89. Kr. 20.

XI. The Eskimo tribes, their distribution and characteristics, especially in regard to language. Af **Dr. H. Rink.** Med et Supplement og 1 Kort. 1887—91. Kr. 7. Udsolgt.

XII. Om Grønlands Vegetation af **Eug. Warming.** 1888. Kr. 3,50.

XIII. Bibliographia Groenlandica ved **P. Lauridsen.** 1890. Kr. 3,50.

XIV. Undersøgelser af Grønlandske Nefelinsyeniter af **N. V. Ussing.** Mineralogiske Undersøgelser i Julianehaab-Distrikt af **Gust. Flink.** Undersøgelser i Egedesminde-Distrikt i 1897 af **Frode Petersen, Helgi Pjetursson og C. Kruuse.** Med 10 Tavler. 1898. Kr. 8.

XV. Bidrag til Vest-Grønlands Flora og Vegetation af **N. Hartz og L. Kolderup Rosenvinge.** Mosser fra Øst-Grønland af **C. Jensen.** Diatoméer af **E. Østrup.** Forekomst af Cohenit i tellurisk Jern ved Jakobshavn af **Dr. E. Cohen.** Med 2 Tavler. 1898. Kr. 8.

XVI. Undersøgelser i Julianehaabs Distrikt 1893 og 1894. Skjærgaardsopmaaling, Undersøgelse af Indlandsis og Bræer, Misvisning m. m. ved **V. Garde, C. Moltke og A. Jessen.** Arkæologiske Undersøgelser af **D. Bruun, F. Petersen og V. Boye.** Med 20 Tavler. 1896. Kr. 10.

XVII—XIX. Den østgrønlandske Expedition i Aarene 1891—92 (Scoresby-Sund) ved **C. Ryder, H. Vedel, N. Hartz, E. Bay, H. Deichmann, C. Christiansen, Willaume-Jantzen, Rørdam, S. Hansen, Børgesen, Rostrup. Deichmann Branth, Østrup, Posselt, Lundbeck, H. Hansen, Wesenberg-Lund og Lundgren.** Med 40 Tavler. 1895—96. Kr. 25.

XX. Grønlands Alger, Flora og Vegetation af **L. Kolderup Rosenvinge.** Om Steenstrupin af **Joh. Chr. Moberg.** Grønlands gamle Topografi af **Finnur Jónsson.** Brade Ransons Forde af **Frode Petersen.** Med 3 Tavler. 1899. Kr. 6.

XXI. 1ste Afdeling: Grønlands Fugle af **Herluf Winge.** 1899. Kr. 4,50.

2den Afdeling: Grønlands Pattedyr af **Herluf Winge.** 1902. Kr. 3.

XXIII. 1ste Afdeling: Grønlands Brachiopoder og Bløddyr af **Henr. J. Posselt**, udgivet efter Forfatterens Død ved **Ad. S. Jensen.** Med 2 Tavler. 1899. Kr. 4,50.

IX.

List

of the Andreaeales and Bryales found in East-Greenland between 74° 15′ and 65° 35′ lat. N. in the years 1898—1902.

By

Aug. Hesselbo.

1907.

The mosses mentioned in the following list were collected by C. Kruuse and N. Hartz during the following expeditions:

Den danske Baadexpedition 1898—99.
- — — 1900.
Den danske Expedition 1901—02.

The Sphagnales and Hepaticae collected at the same expeditions have been determinated by C. Jensen, who also had determinated some of the Bryales when I recieved the collections.

Lists of the situation of the localities have been published by C. Jensen: List of the Hepaticae and Sphagnales found in East-Greenland, and C. Kruuse: List of Phanerogames and Vascular-Kryptogames appearing in the Angmagsalik District. (Medd. om Grønland vol. XXX, pag. 213—14 and 297—99).

The mosses, which have not hitherto been found in Greenland have been marked with *.

1. Polytrichum commune L.

Kap Greg mixed up in tufts of *Sphagnum Girgensohnii*, and with *Ceratodon purpureus* and *Hypnum aduncum* (forma *integerrima*) (N. Hartz). Elvbakker, Tasiusak st.[1]); Amaka on the border of a pond among *Spagnum riparium* st. (Kruuse).

2. Polytrichum juniperinum Willd.

Kuarmiut st.; Skærgaardshalvøen st.; Skerasak st.; Hurry Inlet st.; Turner Sund in tufts of *Sphaerocephalus palustris* st.; Tasiusak st.; Krotodok st.; Narsik cfr.[2]) (Kruuse) Kap Borlase Warren st. among *Ceratodon purpureus* (Hartz).

3. Polytrichum strictum Banks.

Ingmikertorajik cfr., partly mixed with *Dicranum elongatum*; Ødesund st. among *Dicranum fuscescens*; Tasiusak cfr. among *Sphaerocephalus turgidus* and *Dicranum elongatum*; Sarfak with *Sphagnum Warnstorffii* st. Turner Sund cfr. and ♂; Kap Dalton st.; Adloe Kap Dan st.; Depot Ø st.; Norsit ♂; Krotodok st. (Kruuse). Kap Borlase Warren st. (Hartz).

4. Polytrichum pilosum Neck.

Nualik, Døde Hus Pynt ♂; Adloe cfr.; Tunok cfr.; Ryders Dal cfr.; Jærnø ♂; Kingorsuak on sandy flats st. (Kruuse).

5. Polytrichum sexangulare Flörcke.

Turner Sund sparingly with *Jungermannia ventricosa* and *J. qvinqvidentata* cfr.; Misutok with *Jungermannia alpestris* st.; Kap Warming st.; Sabine Ø st.; Tasiusarsik in Angmagsalik Fjord with

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[1]) st. = signifies sterile.

[2]) cfr. = signifies fruiting.

Dicranum elongatum st.; Elvbakker, Tasiusak sparingly with *Pohlia gracilis*, *Bartramia ityphylla* and *Anthelia julacea* st. (Kruuse) Kap Dalton st. (N. Hartz).

6. Polytrichum alpinum L.

Kap Greg, partly in tufts in a length of c. 15 ctm., partly mixed with *Pohlia nutans* st.; Kap Brewster st. (Hartz); Ryders Dal st.; Anava, partly cfr.; Nualik, Døde Hus Pynt, more samples, partly cfr.; Eskimo Ø cfr.; Kunak Ø st.; Utorkarmiut st.; Depot Ø st.; Kingorsuak, the westside st.; Elvbakker, Tasiusak in Kolonibækken cfr.; Krotodok, Tasiusak st.; Falkefjord st.; Midtpynt near Kangerdlugsuatsiak st.

var. *septemtrionalis* (Sw.).

Søndre Aputitek st.; Tasiusak cfr. (Kruuse).

7. Polytrichum urnigerum L.

Kingorsuak, the westside, mixed up in tufts of *Hylocomium proliferum*, *Dicranum scoparium* and *Sphaerocephalus turgidus* st.; Kap Hillebrand st. (Kruuse).

*8. Schistophyllum osmundioides (Sw.) La Pyl.

var. *microcarpus* Br. eur.

Nordostbugt in bogs with *Meesea trichoides* β *minor*, *Swartzia montana*, *Blepharostoma trichophyllum* and other mosses st. (Hartz).

9. Astrophyllum hymenophylloides (Hüb.) Lindb.

Sabine Ø st. (Kruuse); Fleming Inlet st. (Hartz).

10. Astrophyllum cinclidioides (Blytt.) Lindb.

Falkefjord ♀; Amaka near Kordlortok on the border of a pond st.; Tunok in archangelicetum st. (Kruuse).

11. Astrophyllum medium (Br. eur.) Lindb.

var. *arcticum* C. Jensen.

Nordostbugt in bogs st.; Kap Seaforth on mew-hillocks st. (Hartz).

12. Astrophyllum orthorrhynchum (Br. eur.) Lindb.

Fleming Inlet, sparingly among other mosses st. (Hartz); Kap Dalton st. (Kruuse).

13. Timmia austriaca Hedw.

Canning Ø st.; Sabine Ø st. (Kruuse); Kap Dalton st. (Hartz).

14. Sphaerocephalus palustris (L.) Neck.

Nordostbugt in bogst st.; Kap Seaforth on mew-hillocks st.; Kap Dalton st. (Hartz). Akiliarisek st.; Elvbakker st.; Ingmikertorajik st.; Turner Sund, several samples st.; Henry Ø, 840 m. above the level of the sea st.; Midtpynt near Kangerdlugsuatsiak st.; Ryders Dal st. (Kruuse).

15. Sphaerocephalus turgidus (Wahlb.) Lindb.

Kap Dalton, several samples st. (Hartz, Kruuse); Liverpool Kyst st.; Henry Ø, 840 m. above the level of the sea st.; Anava st.; Elvbakker st.; Krotodok st. (Kruuse); Nordostbugt in bogs st.; Jan Mayen st. (Hartz).

16. Paludella sqvarrosa (L.) Brid.

Falkefjord st.; Amaka near Kordlortok on the border of a pond st.; Elvbakker st. (Kruuse); Nordostbugt in bogs st. (Hartz).

17. Meesea trichoides (L.) Spruce.

var. *minor* (Brid.).

Nordostbugt in bogs st. (Hartz); Ryders Dal st. (Kruuse), in both places sparingly mixed up in tufts of other bog mosses.

18. Philonotis fontana (L.) Brid.

Ikerasausak in archangelicetum st.; Elvbakker, several samples st.; Ryders Dal ♂; Kangerdlugsuatsiak st.; Turner Sund st.; Ikatek ♂; Amaka on the border of a pond st.; Tasiusak ♀; Henry Ø 840 m. above the level of the sea st.; Tasiusarsik in Angmagsalik Fjord st.; Jærn Ø st.; Sabine Ø st.; Tunok st.; Ingmikertorajik st.; Kap Warming st. (C. Kruuse); Nordostbugt in bogs st.; Fleming Inlet st.; Kap Brown st.; Kap Borlase Warren st. (Hartz).

19. **Philonotis caespitosa** Wils.

Tasiusak ♂; Kap Wandel cfr. and ♂ (Kruuse) (C. Jensen determ.).

20. **Bartramia crispa** Sw.

Kap Dalton cfr. (Hartz); Elvbakker cfr.; Turner Sund cfr. (Kruuse).

21. **Bartramia ityphylla** Brid.

Amaka, on the border of a pond cfr.; Elvbakker, in bogs st., and at Kolonibakken cfr.; Smalsund cfr.; Tasiusak cfr.; Lille Ø st.; Kap Wandel cfr.; Adloe st.; Narsik cfr.; Krotodok cfr. (Kruuse).

22. **Conostomum tetragonum** (Vill.) Sw.

Tunok cfr.; Vahls Fjord cfr.; Kingorsuak st.; Ikerasausak in the heath st.; Amaka st.; Tasiusak cfr.; Lille Ø st.; Nualik, Døde Hus Pynt st.; Turner Sund st. (Kruuse); Misutok cfr.

23. **Bryum capillare** (L.).

Kap Wandel st. (Kruuse).

24. **Bryum elegans** Nees.

Utorkarmiut st. (Kruuse).

25. **Bryum neodamense** Itzigs.

var. *ovatum* Jur.

Lille Ø st.; Ryders Dal st.; Tasiusarsik st. (Kruuse).

26. **Bryum ventricosum** Dicks.

Nordostbugt in bogs ♂; Kap Seaforth on mew-hilloks ♀ (forma *tenuis, brevifolia*) (Hartz); Amaka on the border of a pond st. (var. *duvalloides* Itz.); Tunok st. (forma *cavifolia*); Elvbakker st. (Kruuse).

27. **Bryum argenteum** L.

Falkefjord st. (Kruuse); Kap Greg st. (Hartz).

28. **Bryum cirratum** Horusch.

Turner Sund cfr.; Ryders Dal cfr.; Ikerasausak in archangelicetum cfr.; Kangerdluarsikajik cfr. (Kruuse); Kap Dalton cfr. (Hartz).

29. Bryum obtusifolium Lindb.

Kap Borlase Warren among *Philonotis fontona* st.; Kap Greg st. (Hartz); Sabine Ø st.; Turner Sund st. (Kruuse).

30. Bryum teres Lindb.

Kap Borlase Warren st. (Hartz); Sierak st. (Kruuse).

31. Bryum purpurascens (R. Br.) Br. eur.

Kingorsuak on sandy flats cfr.; Ingmikertorajik Fugleholm cfr. (Kruuse).

32. Bryum arcticum (R. Br.) Br. eur.

Sabine Ø cfr. (Kruuse).

33. Bryum pendulum (Horusch) Sch.

Kap Brewster cfr.; Kap Borlase Warren cfr. (Hartz).

var. *compactum* (Hornsch.) Sch.

Kap Borlase Warren cfr. (Hartz).

34. Bryum archangelicum Br. eur.

Turner Sund cfr.; Ryders Dal cfr. (Kruuse).

35. Bryum inclinatum (Sw.) Blandow.

Ikerasausak in archangelicetum cfr.; Sierak cfr.; Tasiusak cfr. (Kruuse); Kap Dalton cfr. (Hartz).

36. Plagiobryum Zierii (Dicks.) Lindb.

Canning Ø st. (Kruuse).

37. Pohlia albicans (Wahlb.) Lindb.

Tasiusak st.; Ingmikertorajik st.; Ikerasausak in archangelicetum st. (Kruuse).

var. *glacialis* Schleich.

Kap Tobias st.; Amaka on the border of a pond st.; Liverpool Kyst st.; Elvbakker st. (Kruuse).

38. Pohlia commutata (Schimp.) Lindb.

Turner Sund: several sterile tufts, partly mixed with other mosses; Kangerdlugsuatsiak st.; Jærn Ø cfr.; Tasiusak st.; Tasiusarsik

in Angmagsalik Fjord st.; Ryders Dal st.; Smalsund ♀; Nualik st. (Kruuse); Nordostbugt in bogs ♂ and cfr.; Kap Brewster st. (Hartz).

var. *filum*.

Nualik st. under Snebræen; Misutok st.; Kingak Angmagsivik in heat st. (Kruuse); Kap Warming st. (Hartz).

39. **Pohlia gracilis** (Schleich.).

Jameson Land st.; Kap Greg st. with *Ceratodon purpureus*; Nordostbugt in bogs st. among other mosses (Hartz); Elvbakker st.; Ingmikertorajik st. with *Amblystegium aduncum*, and in bogs; Tunok st.; Kingorsuak on sandy flats st.; Kap Dalton among other mosser st. and ♂; Sierak Dal on sandy flats st.; Bræfjord near Kap Wandel st.; Henry Ø 840 m. above the level of the sea st.; Fleming Inlet st.; Akiliarisek st.; Tasiusak st. in a rill (Kruuse).

40. **Pohlia proligera** Lindb.

Depot Ø in an old tomb. ♀; Turner Sund st. (Kruuse); Kap Greg st. (Hartz).

41. **Pohlia nutans** (Schreb.) Lindb.

Turner Sund, several samples cfr.; Kap Warming cfr.; Nualik, Døde Hus, more samples, partly cfr.; Ingmikertorajik cfr. and Ingmikertorajik Fugleholm cfr.; Nordre Skerasek cfr.; Søndre Aputitek cfr.; Anava st.; Depot Ø st.; Tasiusak cfr.; Hurry Inlet cfr.; Kap Wandel cfr.; Adloe st.; Sabine Ø st. (Kruuse); Kap Greg cfr. (Hartz); Sierak cfr. (Kruuse).

*var. *strangulata* (Nees) Schimp.

Lille Ø cfr. (Kruuse).

var. *sphagnetorum* Schimp.

Turner Sund cfr. in tufts of *Sphaerocephalus palustris* (Kruuse); Nordostbugt in bogs with *Sphagnum* (Hartz).

42. **Pohlia rutilans** (Br. eur.) Lindb. (C. Jensen det.).

Anava cfr. (Kruuse).

43. **Pohlia cucullata** (Schwgr.) Lindb.

Elvbakker st. mixed with *Polytrichum commune* and *Bartramia crispa*; Tasiusak cfr.; Ingmikertorajik in large tufts cfr. (Kruuse).

44. Pohlia crassidens Kindb.

Hurry Inlet, Ryders Dal st. (Kruuse).

45. Pohlia Ludwigii (Spreng.) Lindb.

Kap Greg st. among *Ceratodon purpureus* (Hartz).

46. Pohlia cruda (L.) Lindb.

Nordostbugt in bogs st.; Kap Borlase Warren st.; Kap Brewster st. (Hartz); Elvbakker, more tufts, partly cfr.; Kap Wandel st.; Bræfjord near Kap Wandel st.; Turner Sund st.; Kap Dalton cfr.; Sabine Ø st.; Nualik, Døde Hus Pynt st.; Henry Ø 840 m. above the level of the sea st.; Depot Ø st., more samples; Anava st.; Ingmikertorajik st.; Akiliarisek st.; Kap Brown st.; Midtpynt near Kangerdlugsuatsiak st.; Krotodok st.; Kakasuak near Kingorsuak st. in herby sloaps; Falkefjord st. (Kruuse).

var. *minus* Sch.

Nordostbugt in bogs st. (Hartz); Tasiusak in bogs with *Comarum* st. (Kruuse).

47. Leptobryum pyriforme (L.) Wills.

Kap Borlase Warren cfr.; Kap Seaforth on new-hillocks among *Sphaerocephalus palustris* st. (Hartz); Ingmikertorajik Fugleholm mixed with *Tortula latifolia* st. (Kruuse).

*****48. Tayloria serrata** (Hedw.) Br. eur. var. **pallida** nov. var.

Peristomium valde hygroscopicum, exsiccatum erecto-intricatum, humidum valde spiraliformiter involutum, ad basin in dentes 32 fere hyalinas fissum. Sporæ glabro, 0·014—0·017 mm. Gemmulæ absunt.

Kap Borlase Warren (Hartz).

49. Leersia spathulata (C. M.) Lindb.

Sabine Ø cfr. (Kruuse); Jan Mayen cfr. among Stereodon revolutus and Barbula rubella (Hartz).

50. Leersia affinis (Hedw.) Lindb.

Fleming Inlet st. (Kruuse).

51. Tortula ruralis (L.) Ehrb.

Kap Borlase Warren st. (Hartz); Falkefjord st.; Ryders Dal st.; Misutok st.; Eskimo Ø st.; Depot Ø st.; Anava st.; Kap Brown

st.; Kap Dalton st.; Turner Sund st.; Elvbakker st.; Ingmikertorajik st.; Tasiusak st. (Kruuse).

52. Tortula norvegica (Web.-f.) Wahlenberg.

Kap Borlase Warren st. (Hartz).

53. Tortula latifolia (Hedw.) Lindb.

Kakasuak near Kingorsuak cfr.; Ingmikertorajik Fugleholm cfr.: Tasiusak cfr.; Kap Warming st.; Nordre Skerasak st.; Elvbakker cfr.; Utorkarmiut cfr.; Falkefjord cfr.; Ingmikertorajik cfr.; Kap Dalton cfr.; Hurry Inlet cfr. (var. *encalyptratus* (Lindb.)) (Kruuse).

β. *muticus* Brid.

Depot Ø st.; Jærn Ø st. (Kruuse).

54. Mollia tortuosa (L.) Schrank.

Midtpynt near Kangerdlugsuatsiak st. (Kruuse).

55. Barbula rubella (Hofm.) Mittm.

Kap Borlase Warren cfr.; Jan Mayen cfr. (Hartz).

56. Dicranum fuscescens Turn.

Ingmikertorajik st.; Pynt i Ødesund st.; Jærn Ø st.; Misutok st.; Akiliarisek st. among *Salix arctica* (Kruuse).

var. *tenella* C. Jensen.

Elvbakker st.; Ikerasarmiut st. (Kruuse).

***57. Dicranum montanum** (Hedw.) C. Jensen det.

Kunak Ø, a little sterile tuft (Kruuse).

58. Dicranum elongatum Schleich.

Ingmikertorajik st. among *Sphaerocephalus palustris*, *Polytrichum strictum* and *Jungermannia minuta*; Elvbakker st.; Amaka on the border of a pond st.; Tasiusak st.; Krotodok st. (Kruuse).

59. Dicranum congestum Brid.

Pynt i Ødesund st.; Ryders Dal st.; Turner Sund st.; Henry Ø 840 m. above the level of the sea st.; Krotodok st. (Kruuse); Kap Borlase Warren st. (Hartz).

var. *spadiceum* (Zett.) C. Jensen det.
Krotodok st. (Kruuse).

60. Dicranum angustum Lindb.

Nordostbugt in bogs sparingly in tufts of *Amblystegium polygamum*, *Hypnum trichoides*, *Oncophorus Wahlenbergii* and other mosses (Hartz).

61. Dicranum Bonjeani De Not. f. **orthophylla.**

Adloe Kap Dan st. (Kruuse).

62. Dicranum scoparium (L.) Hedw.

Midtpynt near Kangerdlugsuatsiak st.; Kingorsuak on the westside st.; Ingmikertorajik Fugleholm st.; Kap Wandel st. (var. *paludosum* Sch. forma *orthophylla*); Misutok st. (forma *brevifolia orthophylla*); Krotodok st. (Kruuse); Ingmikertorajik st. (forma *brevifolia orthophylla*) (Kruuse).

63. Dicranum neglectum Jur.

Turner Sund st. more samples; Ryders Dal st.; Elvbakker in bogs st. (Kruuse).

64. Dicranum Mühlenbeckii Br. eur.

Ingmikertorajik st.; Ingmikertorajik Fugleholm st. among *Dicranum elongatum* and *Polytrichum strictum*. Akiliarisek among *Salix arctica* st. (Kruuse).

65. Dicranum molle Wils.

Amaka on river sides st.; Adloe st.; Elvbakker cfr.; Ødesund st.; Ikerasausak in the heath st.; Nordfjord near Tasiusak in bogs cfr.; Krotodok st.

66. Dicranum Starckei W. M.

Lille Ø st.; Tasiusak st.; Amaka on river sides cfr.; Tasiusak Misutok with *Scirpus caespitosus* st. (Kruuse).

67. Dicranum Schisti (Gunn.).

Nualik st.; Krotodok st.; Ødesund st. (Kruuse).

*68. **Dicranoweissia cirrata** (L.) Lindb.

Ingmikertorajik cfr. (Kruuse).

69. **Dicranowussia crispula** (Hedw.) Lindb.

Kap Dalton cfr.; Fleming Inlet cfr. (Hartz); Søndre Aputitek st. (Kruuse).

70. **Dicranoweissia compacta** (Schleich) Schnup.

Falkefjord cfr.; Ingmikertorajik Fugleholm cfr. (Kruuse).

71. **Blindia acuta** (Huds.) Br. eur.

Sarfakajik st. (Kruuse).

72. **Swartzia montana** (Lam.) Ehrb.

Kap Borlase Warren cfr. (forma *brevifolia*); Fleming Inlet st. (ex parte var. *stricta*); Nordostbugt in bogs cfr.; Kap Dalton st.; Jan Mayen st. (Hartz) Ryders Dal st.; Tasiusak (forma *brevifolia stricta*); Turner Sund several samples, partly cfr.; Kangerdlugsuatsiak cfr.; Sabine Ø cfr.; Midtpynt near Kangerdlugsuatsiak cfr. (Kruuse).

73. **Ditrichum flexicaule** (Schleich.) Hampe.

Nordostbugt in bogs st. (Hartz); Sabine Ø st.; Turner Sund st.; Ryders Dal st. (Kruuse).

*74. **Ditrichum zonatum** (Brid.) Limpr.

Kingorsuak on sandy flats st. (Kruuse).

75. **Oncophorus Wahlenbergii** Brid.

Kap Dalton st.; Nordostbugt in bogs (forma *elata, sqvarrosa* c. fol. subdenticulata) st. (Hartz); Kingorsuak, the westside st. (Kruuse).

76. **Oncophorus virens** (Sw.) Brid.

Falkefjord cfr. (Kruuse).

77. **Oncophorus strumifer** (Ehrb.) Brid.

Krotodok cfr. (Kruuse).

78. Oncophorus polycarpon (Ehrh.) Brid.

Canning Ø st.; Sarfak Pynt st. (Kruuse).

79. Oncophorus torquescens (Bruch.) Lindb.

Krotodok cfr.

80. Ceratodon purpureus (L.) Brid.

Kap Borlase Warren st.; Kap Greg (forma *brevifolia viridis*) st.; Jan Mayen st. (Hartz); Tunok st.; Ryders Dal cfr.; Tasiusak st.; Adloe st.; Dunholm (f. *brevifolia*) st.; Kap Warming st.; Anava st.; Ikerasarmiut st.; Ingmikertorajik st. (f. *brevifolia*); Henry Ø 840 m. above the level of the sea st.; Lille Ø cfr.; Kap Dalton st.; Misutok st.; Isi in the Sermilik Fjord cfr.; Ingmikertorajik Fugleholm st. (Kruuse).

81. Dorcadion Killiasii (C. M.) Lindb. (C. Jensen det.).

Kap Dalton cfr. (Kruuse).

82. Dorcadion Blyttii (Schimp.) Lindb.

Falkefjord cfr. (Kruuse).

83. Grimmia ericoides (Schrad.) Lindb.

Adloe st. (Kruuse).

var. *epilosa* H. Müll.

Turner Sund st. (Kruuse).

84. Grimmia hypnoides (L.) Lindb.

Elvbakker, in bogs st.; Amaka on the border of a pond st.; Lille Ø st.; Sun Ø st.; Kangerjiks Ø st.; Wahls Fjord st.; Ødesund st.; Jærnø st.; Henry Ø st.; Falkefjord st.; Krotodok st. (Kruuse); Jan Mayen st.; Fleming Inlet st. (Hartz).

85. Grimmia fascicularis (Schrad.) C. M.

Jærn Ø st.; Sarfakajik in herby sloaps with *Carex pulla* (forma *atrata*) st.

86. Grimmia alpestris Schleich.

Nualik, Døde Hus Pynt cfr. (Kruuse).

87. Grimmia mollis Br. eur.

Kap Warming st. (Kruuse).

88. Grimmia apocarpa (L.) Hedw.

Canning Ø cfr. Kap Brown cfr. (Kruuse).

89. Grimmia gracilis Schleich.

Jan Mayen cfr. (forma *nigra*) (Hartz).

90. Grimmia alpicola Sw. (C. Jensen det.).

Falkefjord st. (Kruuse).

***91. Sekra minor** (L.) Adans. (C. Jensen det).

Amaka on the border of a pond mixed with *Amblystegium pseudostramineum* st. (Kruuse).

92. Andreaea petrophila Ehrh.

Nualik, several tufts, partly cfr.; Ødesund st.; Kap Hillebrandt cfr.; Jærn Ø st.; Kap Warming st.; Lille Ø st.; Krotodok cfr.; Falkefjord cfr. (Kruuse).

***93. Amblystegium Juratzkanum** Sch.?

Kap Borlase Warren st., very sparingly mixed up in a tuft of *Tayloria serrata* var. *pallida*. The sample is too little for an exact determination.

94. Amblystegium protensum (Brid.) Lindb.

Kap Wandel st. (Kruuse); Nordostbugt in bogs st. (Hartz).

95. Amblystegium stellatum (Schreb.) Lindb.

Nordostbugt in bogs with *Amblystegium Sendtneri*, *A. aduncum* etc. st.; Kap Borlase Warren st. (Hartz). Hurry Inlet st.; Misutok with *Scirpus caespitosa* st. (Kruuse).

96. Amblystegium polygamum Br. eur.

Nordostbugt in bogs with *Hypnum trichoides*, *Oncophorus Wahlenbergii* etc. st.; Kap Dalton st. (Hartz).

97. Amblystegium Sendtneri (Schimp.) Lindb.

Nordostbugt in bogs with *A. turgescens, A. revolvens, A. sarmentosum* etc. cfr. (Hartz). Ryders Dal (var. *vulgaris* Sanio) st. (Kruuse).

98. Amblystegium Cossoni (Schimp.) Lindb.

Nordostbugt in bogs st. (Hartz).

99. Amblystegium revolvens (Sw.) De Not.

Nordostbugt in bogs with other species of *Amblystegium* st. (Hartz).

100. Amblystegium vernicosum Lindb.

Nordostbugt in bogs with jung capsules (Hartz).

101. Amblystegium aduncum (L.) Lindb.

Ødesund st.; Kap Dan st.; Anava st.; Ingmikertorajik st.; Ingmikertorajik Fugleholm st.; Sten Ø st.; Depot Ø (f. *viridis gracilis*) st.; Kingorsuak cfr. (f. *gracilis*); Turner Sund, several samples st.; Kap Wandel st.; Amaka st.; Akiliarisek st.; Tasiusak st.; Tasiusarsik in Angmagsalik Fjord st. (var. *major*); Kunak Ø st.; Misutok st.; Krotodok st. (Kruuse); Nordostbugt in bogs st.; Kap Greg st.; Fleming Inlet st. (Hartz).

var. *orthothicioides* Lindb.

Kap Seaforth on new-hilloks cfr. (Hartz).

102. Amblystegium exannulatum (Br. eur.) De Not.

Liverpool Kyst, southern part st.; Amaka on the border of a pond with Juncus st.; Ikerasausak (f. *ortho-brachyphylla*) st.; Tasiusak (f. *orthophylla*) st.; Ingmikertok (f. *orthophylla*) st.; Ikerasausak st.; Grønlænderpynt st. (Kruuse).

103. Amblystegium tundrae Arnell ex. p.

Syn: **Drepanocladus tundrae** Loeske in: Zweiter Nachtrag zur Moosflora des Harzes (Verh. des Bot. Vereins der Prov. Brandenburgs XLVI pag. 194).

Amaka on the border of a pond with Juncus st.; Elvbakker in bogs st. (Kruuse).

104. Amblystegium fluitans (L.) De Not.

Nordostbugt in bogs st. (N. Hartz).

105. Amblystegium purpurascens (Schimp.).

Sieralik on sandy flats st.; Depot Ø with *A. sarmenlosum* st.; Jærn Ø st.; Elvbakker st.; Tasiusak st. on sandy flats, among *Sphagnum Girgensohnii*; Ikerasausak in rills in the heath st. (Kruuse).

106. Amblystegium Berggrenii C. Jensen.

Ikerasausak among *Sphagnum riparium* (Kruuse).

***107. Amblystegium pseudostramineum** (C. M.) Lindb.

Amaka on the border of a pond st. (Kruuse).

108. Amblystegium Kneiffii Br. eur.

Kap Borlase Warren (f. *brevifolia orthophylla*) st. (Hartz).

109. Amblystegium polycarpon (Bland.).

Kap Borlase Warren (Hartz). Isi in Sermilik Fjord in ponds with *Alopecurus geniculatus* (forma *simplex*) st. (Kruuse).

110. Amblystegium brevifolium Arnell.

Ryders Dal st. (Kruuse).

111. Amblystegium badium (Hartm.) Lindb.

Adloe st. (Kruuse).

112. Amblystegium scorpioides (L.) Lindb.

Ryders Dal, Vargudden, with *A. sarmentosum*, *Stereodon chryseus* and *Ditrichum flexicaule* st. (Kruuse).

113. Amblystegium turgescens (Jensen) Lindb.

Nordostbugt in bogs among other bogmosses (*Harpidium*, *Bryum ventricosum*) st. (Hartz). Liverpool Kyst, partly mixed with *Ambl. Sendtneri*, *Paludella sqvarrosa* etc. st.; Ryders Dal with *Ambl. Sendtneri* st. (Kruuse).

114. Amblystegium giganteum (Sch.) De Not.

Sabine Ø st. (Kruuse).

115. Amblystegium cordifolium (Hedw.) De Not.

Nordostbugt in bogs with *Paludella sqvarrosa* and other mosses st.; Kap Dalton st. (Hartz).

116. Amblystegium sarmentosum (Will.) De Not.

Nordostbugt in bogs st. (Hartz); Turner Sund st.; Ryders Dal st.; Kap Dalton st.; Jærn Ø st.; Adloe st.; Ødesund st.; Nualik st. (Kruuse).

117. Amblystegium stramineum (Dicks) De Not.

Nordostbugt in bogs among *Paludella sqvarrosa* st. (Hartz). Eskimo Ø st.; Adloe, Kap Dan st. with *Sphagnum Girgensohnii*; Anava st.; Falkefjord among *Paludella* st.; Tasiusak with *Polytrichum juniperinum* st.; Ingmikertorajik st.; Ingmikertorajik Fugleholm st.; Ikerasausak among *Sphagnum Girgensohnii* st.; Kordlortok Sø on the border st.; Kuarmiut among *Sphagnum teres* st. (Kruuse).

118. Amblystegium trifarium (W. M.) De Not.

Nordostbugt in bogs (Hartz).

119. Hypnum reflexum Starke.

Ingmikertorajik cfr.; Akiliarisek among *Salix arctica* st. (Kruuse).

120. Hypnum Mildei (Schimp.).

Nordostbugt in bogs st. (Hartz).

121. Hypnum plumosum Huds.

Ryders Dal among *Sphaerocephalus palustris* st.; Sabine Ø st. (Kruuse).

122. Hypnum turgidum Hartmann.

Turner Sund st.; Sabine Ø st. (Kruuse); Kap Seaforth on mew-hilloks st. (Kruuse).

123. Hypnum albicans Neck.

Kap Wandel st. (Kruuse).

***124. Hypnum erythrorrhizon** (Br. eur.) Hartmann.

Ingmikertorajik st. (Kruuse).

125. Hypnum trichoides Neck.

Nordostbugt in bogs st.; Kap Dalton st. (Hartz); Kap Brown st.; Kingorsuak, the westside, among *Sphagnum teres* st. (Kruuse).

***126. Lesquereuxia filamentosa** (Dichs.) Lindb. var. **brachyclados** (Schwäg.) (C. Jensen det.).

Ingmikertorajik ♂; Tasiusarsik in Angmagsalik Fjord ♀ (Kruuse).

127. Myurella tenerrima Brid.

Tasiusak among *Swartzia montana* st.; Misutok at *Woodsia ilvensis* among *Swartzia montana* st. (Kruuse).

128. Myurella julacea (Will.) Br. eur.

Sabine Ø among *Swartzia* st.; Kangerdluarsuatsiak among *Swartzia* st.; Ryders Dal among *Sphaerocephalus palustris*, *Polytrichum alpinum* and *Bryum ventricosum* st. (Kruuse); Jan Mayen among *Leersia spathulata* st.; Fleming Inlet among *Leersia affinis* st. (Hartz).

129. Hylocomium proliferum (L.) Br. eur.

Kap Wandel st.; Kingorsuak, the westside st. (Kruuse).

***130. Campylium hispidulum** (Brid.) Mitten.

Turner Sund in tufts of *Dicranum neglectum* st. (Kruuse).

131. Stereodon revolutus Mitten.

Kap Borlase Warren st.; Jan Mayen st. (Hartz); Kap Dalton, several samples, st. (Hartz, Kruuse); Turner Sund st.; Ikerasarmiut st.; Ryders Dal st. (Kruuse).

132. Stereodon chryseus (Schwägs.) Mitt.

Sabine Ø st.; Turner Sund st.; Ryders Dal, Vargudden st. (Kruuse).

***133. Stereodon rufescens** (Dicks.) Mitten.

Kap Wandel among Bartramia ityphylla st. (Kruuse); Kap Borlase Warren sparingly in tufts of *Tayloria serrata* var. *pallida*.

134. Isopterygium pratense (Br. eur.) Lindb.

Kap Seaforth on mew-hillocks st. (Hartz).

135. **Isopterygium nitidum** (Wahlb.) Lindb. var. **pulchellum** (Dicks.).

Fleming Inlet st. (Hartz); Turner Sund st.; Ryders Dal st.; Henry Ø 840 m. above the level of the sea st.; Krotodok st. (Kruuse).

136. **Plagiothecium denticulatum** (L.) Br. eur.

Turner Sund st. (Kruuse).

* var. **Donii** (Sm.).

Kingorsuak, in the great thicket of Salix st. (Kruuse).

137. **Climacium dendroides** (L.) W. M.

Kakasuak near Kingorsuak among *Thalictrum* st. (Kruuse).

28—8—1907.

X.

The vegetation of Northeast Greenland

69° 25′ lat. n.—75° lat. n.

by

N. Hartz and Chr. Kruuse.

1911.

During the Danish expedition to East Greenland 1900, under the charge of G. Amdrup, we investigated the flora and vegetation of the tracts of land visited by the expedition.

The route followed by the expedition has been mentioned by N. Hartz in "Medd. om Grønl." vol. XXVII. List of discovered phanerogams and vascular cryptogams is furnished by Chr. Kruuse in "Medd. om Grønl." vol. XXX, in which volume is made mention also of the algae, mosses, fungi and lichens collected by us.

Sabine Island (N. Hartz.)

July 11th—12th. The "Antarctic" was riding at anchors in Griper Roads southwest of the extreme point of the cape where the ruins of the German observatory were still to be seen. Across the low tongue of land and across low, flat ground I went towards WNW, away to the big stream which borders Hasenberg towards the east; the stream and the whole of the cleft through which it runs, were as yet for a great deal hidden under huge snow-drifts; here and there the stream had however burst through the ice- and snowcover; at such places steep snow walls bordered its course.

Animal life was rather rich; in the course of this day's march I saw 3 musk-oxen [1]), 3 hares, one hen-ptarmigan with a numerous hatch of chickens, numbers of snow-sparrows, a

[1]) In the stomach of a shot musk-ox were found by washing of the exceedingly evil-smelling contents of the stomach abt. 99 p. cent of leaves and small branches of *Salix arctica*; besides single leaves of *Luzula*, gramineous plants, *Dryas* and fragments of *Stereocaulon*.

few ravens, and excrements of foxes and a great many tracks of lemmings; a great many insects were seen visiting the flowers.

In the low ground by Germania Harbour were found enormous numbers of *Papaver radicatum*[1]; it was now in full flower and so luxuriant as hardly anywhere else in Greenland; one big tuft near the beach bore — beside a number of capsules from 1899 — a young fruit from 1900, 38 fully developped, large flowers and 34 big, black-haired buds. At the summit of Hasenberg grew comparatively many white-flowered poppies, many white-flowered specimens being seen as well on moist ground near the harbour.

On the numerous decumbent little bushes of *Salix arctica* on the slopes of the stream was seen beautiful wind-erosion[2]; the predominant wind in the valley is the northwind, in the direction of the valley.

A special character was given to the vegetation by the occurrence of divers northern species, such as *Saxifraga flagellaris* and *hirculus*; the first mentioned being particularly frequent; *Polemonium humile* with its large vividly coloured flowers is known to belong to the rare constituents of the Greenland-flora; it was common here, partly on the dry, naked basalt-plateaus, partly in humid cracks where, on humus, it formed big, luxuriant, flowery "mats".

Taken as a whole it was the ordinary, northern insular vegetation: In the hollows *Carex*-bogs, moss-bogs or combined moss-*Carex*-bogs; on the dry mountain slopes rocky-flat formation[3]) more or less luxuriant all in proportion to exposition, mouldformation etc. Considerable continuous tracts of heathmoor-land we did not see in the island.

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[1]) We are using the same plant names as in Chr. Kruuse's above quoted paper (Medd. om Grønl., XXX).

[2]) cp. truncs from Scoresby Sund mentioned and pictured by Hartz Medd. om Grønland, XVIII, p. 310.

[3]) Eug. Warming's "Fjældmark" (fell-field).

S a b i n e I s l a n d (Chr. Kruuse).

On the strand round G e r m a n i a Harbour was found a rather broad zone of a strand-flora consisting of: *Carex glareosa, C. salina v. subspathacea, Glyceria vilfoidea, Halianthus peploides, Stellaria humifusa, Cochlearia officinalis v. groenlandica* and *Armeria vulgaris v. sibirica.*

Behind (north of) the harbour is a small bog, or rather a river-bed with very flat bottom and gentle inclination. Here were noted:

Ranunculus pygmæus, R. hyperboreus, Saxifraga rivularis, S. nivalis f. tenuis, Koenigia islandica, Juncus biglumis, Eriophorum Scheuchzeri, E. polystachium, Carex lagopina, Alopecurus alpinus.

Between the phanerogams and along the margin of the bog the following mosses were coverforming:

Polytrichum sexangulare, Astrophyllum hymenophylloides, Timmia austriaca, Philonotis fontana, Bryum obtusifolium, B. arcticum, Pohlia nutans, Leersia spathulata, Ditrichum flexicaule, Amblystegium giganteum, Hypnum turgidum, Myurella julacea, Schwartzia montana and *Stereodon chryseus.*

Contiguous to this bog was a sharp-cut, V-shaped, streamlet-cleft, on the sandy sides of which were noted:

Chamænerium latifolium, Draba alpina, Cardamine bellidifolia, Ranunculus pygmæus, Saxifraga cernua, S. decipiens, S. stellaris f. comosa, S. oppositifolia v. pulvinata, Juncus biglumis, Luzula confusa, Festuca ovina, Poa abbreviata and *Equisetum arvense.* The tufts, which were but few cm apart, were all large and richly flowering.

In the valley itself, between the H a s e n b e r g and the G e r m a n i a b e r g, and up the low foot of the latter the loose soils consisted of red, sanded clay strown with !oose, abt. 10 cm large blocks. Both the clay and the blocks originate with the basalt which forms the rocks of the island. On the foot of the mountain lie many large snowdrifts, from which the meltingwater oozes down and steeps the ground to a soft,

soaked, sliding mud; only farther down towards the bottom of the valley does it collect in brooks which have cut in the gravel stony beds which drain the localities. Round them the bottom is stone-hard, dry as a bone and often scarred by cracks forming a diagonal net. The vegetation of the valley was rocky-flat formation with wide intervals between the vascular plants. Cryptogams were almost totally wanting.

The side of the Germaniaberg consists partly of steep basalt crags, which are totally devoid of vegetation at their bases; uppermost on the talus the plants of the rocky-flat formation collect to a dense cover with a height of from 5 to 10 cm, the main part of which is formed by gramineous species, *Alsine biflora* and *Potentillas*. Denser and more pronounced the herby-slope appears, however, on the edges of step-shaped ledges east of Germania Harbour. It is chiefly made up of *Salix arctica, Vaccinium uliginosum v., Campanula uniflora, Polygonum viviparum, Carex rupestris* and *Poa cenisia.*

The cover is complete, 5—10 cm high and fresh-green. Between the named species are found interspersed in lesser numbers the following vascular plants: *Potentilla nivea, P. maculata, P. emarginata, Stellaria longipes, Draba Fladnizensis, Saxifraga hirculus, S. decipiens, Cassiope tetragona, Pedicularis flammea, Gentiana tenella, Taraxacum phymatocarpum, Erigeron uniflorus, Salix herbacea, Oxyria digyna, Elyna Bellardi, Trisetum, Alopecurus alpinus, Equisetum variegatum f. anceps, E. arvense, Cystopteris fragilis, Woodsia ilvensis* and *Lycopodium Selago f. appressa.*

On the flat summit of the Germaniaberg the earth in the depressions is often covered with boulders with a diameter of 30—40 cm, which form a depressed mesh-plexus. Their dark coatings of dessicated algæ and horizontal stripes of clay show that they are covered by water a certain time of the year; in the spaces between them are found the largest associations of *Polemonium*, which often forms patches of 2 m^2.

The plants of the rocky-flat formation were as follows:

Dryas octopetala f. argentea.
— — *f. minor.*
Potentilla pulchella f. humilis
— *maculata.*
— *nivea.*
Melandrium apetalum.
— *involucratum v. affine.*
Silene acaulis.
Sagina nivalis.
Alsine biflora.
— *verna v. rubella.*
Arenaria ciliata v. humifusa.
Stellaria longipes.
Cerastium alpinum.
Draba alpina.
— *nivalis.*
— *Fladnizensis.*
— *hirta.*
— *arctica.*
Cardamine bellidifolia.
Ranunculus glacialis.
— *nivalis.*
— *altaicus.*
— *arcticus.*
Saxifraga stellaris v. comosa.
Alopecurus alpinus.
Trisetum subspicatum.
Dupontia Fisheri.
Arctagrostis latifolia.
Hierochloa alpina.
Aira cæspitosa v. alpina.
Poa glauca.
Saxifraga cernua.
— *decipiens.*
— *hirculus.*
— *oppositifolia.*
— *flagellaris v. setigera.*
— *nivalis.*
Papaver radicatum.
Armeria vulgaris v. sibirica.
Pedicularis hirsuta.
Cassiope tetragona.
Empetrum nigrum.
Vaccinium uliginosum v. microphyllum.
Polemonium humile.
Erigeron compositus.
— *uniflorus v. pulchellus.*
Arnica alpina.
Taraxacum phymatocarpum.
Polygonum viviparum.
Luzula confusa.
— *arctica.*
Elyna Bellardi.
Carex capillaris.
— *misandra.*
— *nardina.*
— *rupestris.*
Poa abbreviata.
Festuca ovina.
Woodsia ilvensis.
Equisetum variegatum.
— — *f. anceps.*
— *arvense.*

Cape Borlase Warren (N. Hartz).

July 14th. The next place in which we landed was abt. 1 km. to the north of Cape Borlase Warren; we did not stay but 3 hs. here.

Inside a low sea-margin, made up of gneiss-blocks, was found a small lagoon with fresh water, originating from a snow-drift close to the beach. The sea nevertheless once in a while sets into the lagoon, a circumstance of which numerous *Laminaria*-leaves and sea-mussels in the water bore witness.

Animal life in the lagoon was rich and swarming; great swarms of *Apus glacialis* were stirring the mud on the bottom[1]); brown *Daphniae* and countless gnatworms were rooting the bottom or swimming in the water; on mosses in the water was seen a rich *Chlorophyllaceae*-vegetation.

On the inside of the lagoon (western side) was found a narrow green fringe made up of *Glyceria vilfoidea*, sprinkled with flowering *Stellaria humifusa*, some few *Cochleariae, Carex ursina* (largely cropped by geese), *Ranunculus hyperboreus* (partly with floating leaves, now in flower), *Phippsia algida* and *Koenigia* — besides numerous mosses. The whole of the vegetation along the lagoon had a white salt-covering; numerous excrements of geese were scattered everywhere on the beach; in the fat, moist marshy ground and in the half moulded geese-excrements were found quantities of small worms. The humus-layer along the inside of the lagoon appeared by the very wrinkles of its surface to be made up mostly of excrements of geese, a quite characteristic form of mould met with again later on in many places frequented by the geese.

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[1]) The grey colour of *Apus* completely matches the grey mire at the bottom of the lagoon; the animal was hardly discernible when lying quietly on the bottom. Now and then a solitary *Apus* might be seen swimming on its back and with its mouth in the very surface of the water searching and skimming this latter most carefully; every single air-bubble on the surface was thoroughly investigated.

The water in the lagoon was quite tepid close to the beach where the current from the little brook did not reach. At 5^{30} p. m. were read the following temperatures:

Temperature of the air (swing thermometer), fog, sun hardly breaking through .... + 1° C.
Temperature of the water, 5 cm depth, ball reposing on cover of *Chlorophyllaceae* .... + 14,5° C.
Temperature of water, 14 cm depth, ball on mud-bottom .... + 13° C.

At an Esquimaux-ruin near the beach was found the usual vegetation of *Alopecurus alpinus* on the thick mould-layer. In the vicinity of the ruin was seen a magnificent growth of *Polemonium humile*, whole, large, unmixed "beds" of almost one m^2 size. Here also was found a very big decumbent *Salix arctica*, the foliage of which covered abt. 10 m^2.

Vascular plants from Sabine Island and Cape Borlase Warren.

Dryas octopetala.
Potentilla pulchella f. humilis.
— *emarginata.*
— *nivea.*
— *maculata.*
Chamænerium latifolium.
Empetrum nigrum.
Silene acaulis.
Melandrium involucratum v.
— *apetalum.*
— *triflorum.*
Sagina nivalis.
— *cæspitosa.*
Alsine biflora.
Alsine verna v. rubella.
Halianthus peploides.
Arenaria ciliata v. humifusa.
Stellaria humifusa.
— *longipes.*
Cerastium alpinum.
Cochlearia officinalis f. minor.
Draba alpina.
— *nivalis.*
— *Fladnizensis.*
— *hirta*
— *arctica.*
— *glacialis.*
Braya purpurascens.

Cardamine bellidifolia.
Papaver radicatum.
Ranunculus glacialis.
— *pygmæus.*
— *hyperboreus.*
— *nivalis.*
— *altaicus.*
— *arcticus.*
Saxifraga nivalis.
— *stellaris v. comosa.*
— *cernua.*
— *rivularis.*
— *decipiens.*
— *hirculus.*
— *flagellaris v. setigera.*
— *oppositifolia.*
Armeria vulgaris var.
Pedicularis flammea.
— *hirsuta.*
Polemonium humile.
Gentiana tenella.
Cassiope tetragona.
Rhododendron lapponicum.
Vaccinium uliginosum v.
Campanula uniflora.
Taraxacum phymatocarpum.
Erigeron uniflorus.
— *compositus.*
Arnica alpina.
Koenigia islandica.
Polygonum viviparum.
Oxyria digyna.
Salix arctica.
— *herbacea.*
Juncus biglumis.
Juncus triglumis.
Luzula confusa.
— *nivalis.*
Eriophorum Scheuchzeri.
— *polystachium.*
Elyna Bellardi.
Carex nardina.
— *lagopina.*
— *ursina.*
— *misandra.*
— *glareosa.*
— *salina f.*
— *rupestris.*
— *incurva.*
Alopecurus alpinus.
Hierochloa alpina.
Aira cæspitosa f.
Trisetum subspicatum.
Dupontia Fisheri.
Phippsia algida.
Arctagrostis latifolia.
Glyceria vilfoidea.
Poa abbreviata.
— *glauca.*
— *alpina.*
— *cenisia.*
Festuca ovina.
— *rubra.*
Lycopodium Selago.
Cystopteris fragilis.
Woodsia ilvensis.
Equisetum variegatum.
— — *f. anceps.*
— *arvense.*

Cape Dalton (N. Hartz).

July 18—21[th.] In the lee of (south of) Cap Dalton is a considerable lagoon, cut off from the open sea by a low, black, barren sea-margin, which in the northernmost part reaches abt. 4 m above the sealevel.

In the northern part of the lagoon the winter-ice was still solid; in the shallow water near the margin was found here a peculiar *Fucus inflatus* var. *membranacea*; a quantity of drift-wood had been washed ashore.

The rocks here were basalt. Here, as everywhere on the outer coast it was a very conspicuous fact that the vegetation doesn't reach a passably luxuriant development till at a hundred or a few hundred metres above the the sea level; and not only is the vegetation more vigorous at this elevation, it was also far more advanced in development than the vegetation of the low-land. Thus e. g. *Pedicularis hirsuta*, which in the lowland was not even fully blown, had shed its flowers at a height of a few hundred metres; *Cassiope tetragona* was flowering much more richly up here than farther down. The cold mist, which often settles on the lowland, assuredly acts highly cowing and hindering upon the vegetation down here along the coast. On one of the days while we were staying here the temperature of the air in the lowland, where the fog reigned and a cold wind blew, was $\div 2°$ C., while a few hundred metres further up, above the fogbank, it showed $+ 10°$ C.; up here the weather was calm, and the sun was shining while the fog was still enveloping the lowland.

While the vegetation was extremely poor in the lowland it was surprisingly luxuriant when you got a few hundred m mountainwards. On moist, mould-covered, partly densely moss-grown, terrace-shaped ledges in abt. 200 m height above the level of the sea were noted: Numerous vigorous tufts of *Sedum Rhodiola* (all pure male or female plants, no herma-

Fig. 1. The large basaltwall at Cape Dalton. In the fore-ground the stony bare strand-wall outside the lagoon. (From photo. by Chr. Kruuse).

phroditic plants), *Thalictrum, Potentilla maculata, Draba crassifolia, Oxyria, Erigeron uniflorus, Salix arctica, Carex rigida* (in great numbers). A great many winter-nests and other traces of lemmings were found.

Abt. 250 m above sea level: Large *Cassiope hypnoides* and *C. tetragona* in full flower. The air smelt sweet from the white corollas of *Cassiope tetragona*, which were industriously visited by humble-bees.

Abt. 330 m above sea level: On the solid basalt *Usnea melaxantha* was very common. Here a rich insect-life had developped: *Argynnis*, wasps and *Syrphidae,* besides numerous dancing gnatworms.

Large, dense cushions of *Arctostaphylos alpina* covered the field, which here consisted of débris of basalt; this species was not seen farther down the mountain.

At this height were noted besides: *Potentilla nivea, Saxifraga tricuspidata* and *S. oppositifolia, Dryas octopetala, Carex nardina, Pedicularis hirsuta, Cerastium alpinum, Polygonum viviparum, Ranunculus arcticus* with its var. *Wilanderi, Arnica alpina.*

This latter evidently turned its big yellow flowers after the sun; all its flowers stood clearly oriented after the direction of the sun.

Cape Dalton (Chr. Kruuse).

The lowland surrounding the lagoon, as well as the littoral region, was totally devoid of vegetation. The north side of the valley is formed by a steep basaltwall, which out in the bay ducks its foot directly in the sea, whereas landwards it is covered by débris consisting of coarse, sharp-edged blocks. In many places the snowcoating is still thick, and the débris is devoid of vegetation except in the few places where a little basalt-rock sticks out and thus forces the water to the surface. Here were noted tufts of *Cassiope tetragona,* some crumpled individuals of *Salix arctica, Polygonum,* an isolated *Ranunculus*

glacialis, and some small tufts of *Tortula ruralis*; but no coherent vegetation. Above the débris the mountain ascends in broad steps towards the east. On the lower steps the snow still lies in most places metrehigh, and wherever it has melted the bottom is a mire of clay, upon which is rarely seen a *Grimmia*-tuft, and still more seldom, only in the lee of stones, some few specimens of *Luzula confusa, Saxifraga stellaris* v. *comosa, S. nivalis* v. *tenuior, Ranunculus glacialis* and *Oxyria*. All here is still thaw and early spring, but even later in the year this cold bottom will house but a very sparse vegetation.

Higher up the steps become more snowless and are covered by moorland-soil, and here the steep slopes between them, wherever is abundant, equally distributed moisture, become densely covered, and if anywhere in the localities a small depression is found, the sides of which protect against wind and weather, one may meet with a veritable herby slope with dense, complete and fresh-green cover of a height of 10—15 cm, formed by:

Sibbaldia, Silene acaulis, Alsine biflora, Cerastium alpinum, C. trigynum, Melandrium apetalum, Draba alpina, D. crassifolia, D. Fladnizensis, Cardamine bellidifolia, Arabis alpina, Thalictrum alpinum, Saxifraga nivalis, S. rivularis, Sedum Rhodiola, Veronica alpina, Taraxacum croceum, Antennaria alpina v. glabrata, Salix herbacea, S. glauca, S. arctica, Polygonum, Oxyria, Koenigia, Luzula spicata, Carex rariflora, C. scirpoidea, C. rigida, Trisetum, Poa pratensis, P. cenisia, Cystopteris and *Equisetum arvense.*

The horizontal flats upon the steps, especially when facing the steeply descending margin, were very moist and covered with extensive flat moss-bogs formed by:

Polytrichum strictum, Sphaerocephalus turgidus, Bartramia crispa, Bryum capillare, Pohlia gracilis, P. cruda, Tortula ruralis, Dicranoweissia crispula, Ceratodon purpureus, Dorcadion Killiasii, Amblystegium polygamum, A. cordifolium, A. sarmen-

tosum, Stereodon revolutus, Cephalozia bicuspidata v. cavifolia, C. divaricata, Blepharostoma trichophyllum, Jungermannia quinquedentata, J. alpestris, J. Kunzeana, Cesia concinnata and *Sphagnum fimbriatum* f. *orthoclada.*

Widely distributed in the moss-cover grew: *Ranunculus pygmæus, R. nivalis, R. hyperboreus, Saxifraga stellaris* v. *comosa, Salix arctica, Koenigia, Luzula confusa, Eriophorum Scheuchzeri, Carex rariflora, C. scirpoidea, Poa pratensis* and *Phippsia algida.*

On the inner parts of the step-flats, and in spots where the margin was convex the humidity was present in far lesser quantities and localized in brooks. Here was found luxuriant heather-moor consisting of:

Cassiope tetragona, Vaccinium, Empetrum, Stellaria longipes, Draba hirta, D. nivalis, Saxifraga tricuspidata, Pedicularis hirsuta, Pyrola grandiflora, Campanula rotundifolia, Antennaria alpina, Carex nardina, C. rupestris and *Woodsia ilvensis.*

Between the high-mountain of Cape Dalton and the mountains behind is found a low mountain range, which the weathering has covered with sand and gravel and strown with broken stones and concretions. It was very dry, without snow and water-courses, and bore a very sparse rocky-flat formation consisting of *Dryas octopetala* v. *minor, Alsine biflora, Silene acaulis, Erigeron uniflorus, Luzula confusa, Carex nardina, Trisetum* and *Poa glauca.* At one place, where some small, weathered crags protruded, a little above the gravel was one, abt. 1 metre long, bush of *Arctostaphylos alpina,* and at another spot one half as big specimen of *Saxifraga tricuspidata,* but elsewhere coherent plant-cover was wanting totally, and there were several metres between the separate tufts.

Up the side of the mountain to the west of this area, the vegetation was a far more luxuriant rocky-flat formation formed by: *Potentilla maculata, P. nivea, Silene, Alsine verna, Cerastium alpinum, Arenaria ciliata, Pedicularis lapponica, P.*

flammea, P. hirsuta, Papaver radicatum, Arctostaphylos, alpina Campanula rotundifolia, Saxifraga decipiens, Arnica alpina, Luzula confusa, L. spicata, Poa glauca, Trisetum, Festuca ovina, Equisetum variegatum and *Cystopteris.*

Turner Sund.

22—28 July. Owing to the ship's taking the ground in Turner Sund, as mentioned by Hartz in his account of the voyage (Medd. om Grønland, XXVII, p. 160) our stay in this place was somewhat longer than intended. Our investigations were all conducted in the Turner Island, at the narrowest spot of the straits, or in the neighbourhood of the island.

A quantity of drift-timber lay washed ashore, partly tall, slim conifers, partly foliage-trees (birch?). A number of loose bits of bark of pine and birch were also seen. One of the trunks of the conifers bore plain marks of the axe. Also a quantity of *Fucus* had drifted ashore; but the sublittoral region and the shallows vere totally bare of algae; on deeper water the algal vegetation was, on the contrary, rich.

A special strand-vegetation was almost totally wanting here; it was represented solely by isolated specimens of *Glyceria vilfoidea, Stellaria humifusa* and *Cochlearia officinalis v. groenlandica* f. *minor.*

On shore were seen traces of reindeer and wolf, numerous lemmings, some ermines; a number of bears were killed under our sojourn here [1]).

Turner Sund (Chr. Kruuse).

The surface of the cape was slightly undulating, covered by coarse gravel and strown with large erratic boulders. The

[1]) The stomach contents of a shot bear appeared to consist largely of leaves of *Oxyria digyna,* evidently the food which the bear has sought ashore; casual ingredients of the stomach contents: a little grass, a few leaves of *Polygonum viviparum, Saxifraga cernua, Sax. cæspitosa, Polytrichum* sp.

Fig. 2. *Ranunculus glacialis*, $^{2}/_{3}$ nat. size, phot. Chr. Kruuse.
Gravelly bottom, Turner Sund, the cape. 27. 7. 00. *R. glacialis* was one of the few bigger phanerogams which rose above the gravel here; but this too sought shelter behind rocks (see these to the left in the figure).

depressions were almost bare of vegetation on account of the long standing snow-covering and the too great humidity. The low, flat summits of the elevated lines were covered by a scanty carpet of *Anthelia* together with scattered tufts of *Grimmia ericoides* and, at large intervals, some single phanerogams more or less influenced by the north wind, which is predominant here. More conspicuous was *Ranunculus glacialis*, which was in full bloom (Fig. 2). The flowers are marked sunflowers turning their corollas after the place of the sun in the sky. The flowers were white, as a rule; we saw, however, several reddish corols. Together with *Ranunculus glacialis* were found a few dwarf specimens of *Cochlearia officinalis v. groenlandica* f. *minor, Sagina nivalis, Silene acaulis, Potentilla maculata, Polygonum viviparum, Salix herbacea, S. arctica, Phippsia, Luzula confusa, Saxifraga decipiens* and *S. rivularis.*

A little more to the westward, by the points of a little bay opposite to the cape, I ascended a 700 m high mountain (exposition SSE.). The beach and the low foreland consisted of basalt gravel, was ploughed by wild brooks, and was covered by very poor rocky-flat formation, chiefly formed by mosses, especially *Anthelia julacea*, which covered large moist patches. Of other mosses were collected here:

Polytrichum strictum, Philonotis fontana, Bartramia crispa, Conostomum tetragonum, Bryum cirratum, B. archangelicum, Pohlia commutata, P. proligera, P. nutans and *v. sphagnetorum, Sphaerocephalus turgidus, P. cruda, Tortula ruralis, Dicranum neglectum, Swartzia montana, Ditrichum flexicaule, Grimmia ericoides, Amblystegium aduncum, A. sarmentosum, Campylium hispidulum, Stereodon revolutus, Isopterygium nitidum v. pulchellum, Cephalozia albescens v. islandica, C. bicuspidata* and *v. cavifolia, C. divaricata f. elongata, C. striatula, Blepharostoma trichophyllum, Jungermannia socia, J. ventricosa, J. minuta, Cesia concinnata* and *Prasanthus suecicus.*

Between the mosses were, here and there, single specimens

of *Silene, Polygonum, Oxyria, Salix arctica, Saxifraga oppositifolia f. reptans, Cassiope tetragona, Luzula confusa, Trisetum, Poa alpina* and *Festuca ovina.* All were low and far behind in development; *Oxyria* f. inst. was here 6 cm high, whereas at an altitude of 250 metres above the level of the sea it reached 31 cm.

This tract reached up to abt. 100 metres above the sea-level. Here began the talus proper, which is considerably steeper, strown with big down-slidden boulders, and has numerous dry brooklet beds with considerable gravel walls on the sides. It stretches from 100 to abt. 250 metres' height. It was covered by spare heather-moor which, on the gravelly walls merged into rocky-flat formation of a somewhat drier description than the above-named. Here were noted down:

Dryas octopetala f. *minor, Chamœnerium latifolium, Silene, Alsine biflora, Cerastium alpinum, Draba alpina, D. Fladnizensis, D. hirta, Arabis alpina, Ranunculus pygmœus, Saxifraga cernua, S. decipiens, S. tricuspidata, S. oppositifolia, Vaccinium, Cassiope hypnoides, C. tetragona, Rhododendron, Arctostaphylos, Pedicularis hirsuta, Oxyria, Polygonum, Salix glauca, Luzula confusa, Carex nardina, C. rigida, Trisetum, Poa alpina, Festuca ovina, Equisetum arvense* and *E. variegatum.*

At a height of abt. 250 m the firm rock protruded as vertical walls "Hamre", highly intersected by clefts and with minute weathering products at the base. Here were found coherent plant covers, the fresh green colour of which is in contrast to the brownish gray heather-moor below. The cover consisted of: *Potentilla maculata, Sibbaldia, Melandrium apetalum, Alsine verna v. propinqua, Arenaria ciliata, Cerastium trigynum, Saxifraga nivalis, Sedum Rhodiola, Veronica alpina, Cassiope hypnoides, Phyllodoce coerulea, Campanula rotundifolia, Antennaria alpina f. glabrata, Erigeron uniflorus, Arnica, Taraxacum croceum, Hieracium alpinum, Betula nana, Salix arctica, S. herbacea, Luzula spicata, Juncus trifidus, Carex scirpoidea* (♂ and ♀),

Poa pratensis, P. glauca, Calamagrostis arundinacea and *Cystopteris fragilis.* In crevices in the rocks were found: *Potentilla nivea, P. maculata, Arabis alpina, A. Holboelli, Alsine verna v. hirta, Cerastium alpinum, Draba nivalis, Saxifraga tricuspidata, Veronica saxatilis, Campanula rotundifolia, Salix glauca, Carex capillaris, C. pedata, Trisetum, Poa glauca* and *Woodsia ilvensis.*

This vegetation reached up to a height of 600 metres; the top of the mountain, 600—720 metres, was very sparely covered by lichens *(Cetraria nivalis* and *islandica, Stereocaulon, Lecanora*-species and others) together with mosses, among which especially *Grimmia hypnoides* made large tufts, whereof were collected: *Polytrichum sexangulare, Sphaerocephalus turgidus, S. palustris, Pohlia gracilis, Dicranum congestum, Plagiothecium denticulatum, Cephalozia pleniceps* and *Jungermannia quinquedentata.* Between the moss-tufts were found very few vascular plants, all dry and in fruit or in a far advanced state of flowering. I noted: *Cerastium alpinum* f. *lanatum, Draba hirta, Luzula confusa, Carex nardina* and *Poa glauca.*

The cause of this poverty of species was not the height above the sea, for the distance from the above named luxuriant vegetation was but slight, but is to be sought in the scarce supply of water at the top. Here were no perennial snow drifts, altogether no sign of snow-covering such as farther down and no depressions where the water might collect and stagnate; on the contrary, the rock was so cracked through all over, that all downpour must disappear immediately after the fall so as to benefit the vegetation farther below on the side of the mountain.

That the height does not interfere with the occurrence of the plants is seen by the following list of plants collected by Koch on Henry Land, abt. 940 m up to ab. 1000 m:

Chamœnerium latifolium.	*Alsine verna.*
Silene acaulis.	*Melandrium apetalum.*
Alsine biflora.	*Cerastium alpinum v. lanatum.*

Draba alpina.
Papaver radicatum.
Ranunculus glacialis.
Saxifraga decipiens.
— *cernua.*
— *tricuspidata.*
Pedicularis hirsuta.
Vaccinium uliginosum.
Cassiope tetragona.
Rhododendron lapponicum.
Campanula rotundifolia.
Arnica alpina.
Salix glauca.
Oxyria digyna.
Polygonum viviparum.
Luzula confusa f. subspicata.
Poa pratensis.
— *glauca.*
Phippsia algida.
Cystopteris fragilis.
Woodsia ilvensis.
Polytrichum sexangulare.
Sphaerocephalus palustris.
— *turgidus.*
Dicranum congestum.
Grimmia hypnoides.
Plagiothecium denticulatum.
Odontoschisma Macounii.
Cephalozia pleniceps.
Martinella Bartlingii.
Jungermannia quinquedentata.
Nardia minor.

These plants were gathered on the mountain side from a height of 940 m up to the 1000 ms. high top partly on herby slopes, partly on the rocks near the top. It is easily seen, that the top has had the same spare flora, while the herby slopes, although 250—300 metres higher than the mountain top ascended by me, have had a character corresponding to the herby slopes in a height of 500—600 metres.

Turner Sund (N. Hartz).

The vegetation is as a rule very poor upon the mountain-slopes and on the narrow foreland by Turner Sund. The lack of stability of the soil is probably an essential cause for the poverty. The weathering of the basalt is very considerable out here at the coast; the melting-water and the avalanches in spring, mountain-slides in the summer-time tear up the steep slopes with a prodigious force; huge holes and deep furrows are often seen in the cones of débris and in the gravel, even away in the narrow lowland between the mountain slopes and the sound. The remnants of the destroyed

Fig. 3. *Salix arctica*, 1/2 nat. size, phot. Chr. Kruuse.
Gravelly bottom, Turner Sund, The cape, 27. 7. 00. Completely decumbent bush; the rugged branches wind between the gravel, no branch and no leaf rises 1 cm above the gravel (a few small specimens of *Stereocaulon* in the gravel round the *Salix*-bush).

and killed vegetation are often seen in the midst of the destroying, down-rolled masses of stones.

The plants often completely change their aspects in these exposed places. *Silene acaulis* evidently can endure a good deal; it is often seen with the strangest of shapes; the normal thick tuft with a circular outline is destroyed and torn up, and the single shoots are isolated; but so long as the long, obliquely lying (originally vertical) tap root is well anchored amongst the stones the plant keeps in life and sets flowers and fruits (Fig. 4). *Arenaria ciliata* too is a plant which can live surprisingly long and well upon slides. On normal, tranquil ground it most often forms dense semi-globular tufts; but often did I see it on the sliding slopes with stretched joints and fibrous, yet flowering and fructiferous; also this plant has a long, powerful tap root reaching far into the ground.

Rarely have I seen a so marked «striate land» as in the basalt-tracts here at Turner's Sund, especially on the flat or gently sloping foreland between the mountain slope and the sound (mentioned and figured by O. Nordenskjöld in "Medd. om Grønl." XXXVIII, p. 274).

If one follows the direction of the basalt ridges and the coast line at a right angle to the «striae» one alternately passes walls of big, sharp edged blocks and grooves between the walls made up of finer material, gravel and sand, rushing torrents of melting-water and avalanches having torn open the surface, now here now there, at different times.

In the grooves is found an exceedingly poor — yet if the groove has been for some time preserved of more considerable devastations — tolerably continuous, cover forming vegetation, chiefly formed by the little *Anthelia julacea,* which is often completely blackened by old, dried-up membranes of algae (doubtless *Cyanophyceae*).

In the spring time these localities are exceedingly moist; then this vegetation does live; during our stay the proper mel-

ting period was over and the topmost part of the grooves, nearest the foot of the mountain, was as a rule dry. Together with *Anthelia* are found some *Stereocaulon* and *Cetraria islandica* and a few phanerogams, but greatly scattered: *Oxyria digyna*, *Ranunculus pygmaeus*, *Ranunc. glacialis*, *Luzula confusa*, *Salix arctica* in small decumbent specimens (Fig. 3), rarely *Salix herbacea* (which is strangely scarce in this region), *Saxifraga cernua*, *stellaris*, *decipiens* and *oppositifolia*, *Polygonum viviparum*, *Cerastium alpinum*, *Chamœnerium latifolium*, *Draba alpina*, *Silene acaulis*, *Cardamine bellidifolia*, *Alsine biflora*.

Whenever the groove is broad and has been left tranquil for a longer period *Dryas*, *Cassiope tetragona*, *Carex nardina*, *Papaver* and more species occur.

The *Anthelia*-crust cracks in the drought into little polygonal fields of a size of 2—5 cm^2; in the fissures between the fields (checks) there soon appears a small, fine, crisp form of *Cetraria islandica*. In proportion as one gets from the beach farther up towards the base of the mountain *Cetraria islandica* spreads more and more widely in the *Anthelia*-cover, *Cassiope tetragona*, *Vaccinium uliginosum* and other heath plants begin to occur; among others I noted in such places *Dryas*, *Pedicularis hirsuta* and *Grimmia* (*hypnoides*?).

While down at the beach, where in many places there still lay an enormous ice-foot and large snowdrifts, we still had the first spring with small, undeveloped flower buds and humidity in the *Anthelia*-cover; but according as we withdrew from the beach, we advanced into a more and more complete summer with flovering herbs and bone dry bottom; the difference in temperature was felt quite immediately.

The most luxuriant vegetation was found here as by Cape Dalton at an elevation of from 250—500 m above the sea level, where one is above the frequent cold fogs. During nearly the whole of our stay the fog kept covering the lowest part of the mountains.

Viewed from a long distance here as there are seen green bands stretching horizontally across the mountain, evidently corresponding to the beds of the basalt. In below the «hammers» (rock ledges) there is always a narrow relatively quiet belt, where humus may collect and fine dust from the mountain slides settle down, while the big stones rolling downwards skip over; and here is found the most luxuriant vegetation, the greenest green in these tracts.

On the 25th of July I made a trip to the other side of the sound, chiefly in order to investigate some large whitish-yellow spots which could be discerned by the telescope from up the mountain side north of the sound; they were found to consist of white-burned schist (abt. 550 m above the level of the sea).

While the lowland was barren and desolate, cross furrowed by melting-water and avalanches, torn open by downs lidden blocks, in short as mentioned above, the vegetation got richer and more luxuriant in proportion as one came up the mountain.

Abt. 250 m above the level of the sea were seen large continuous carpets of decumbent *Betula nana* and *Vaccinium uliginosum*, at the edges bordered by *Empetrum*. Here were also noted the following species all in flower: *Pedicularis flammea*, *Sedum Rhodiola*, *Silene acaulis*, *Juncus trifidus*, *Cerastium alpinum*, *Taraxacum croceum*, *Antennaria alpina*, *Polygonum viviparum*, *Sibbaldia*, *Veronica saxatilis*, *Carex scirpoidea*, *Potentilla maculata*. Here was found a humble-bees' nest dug out by some animal (fox?) and lemmings. Abt. 450 m above sea level were only quite little dwarfspecimens of *Euphrasia latifolia* on gravel.

In the basalt-débris abt. 550 m above the sea-level: *Equisetum variegatum*, *Salix arctica* and *glauca*, *Campanula rotundifolia* (very low stalk, but large, deep blue flowers), *Arenaria ciliata* with a great many flowers (☿, ♀), *Poa glauca*, *Saxifraga nivalis*, *oppositifolia* and *tricuspidata*; the latter

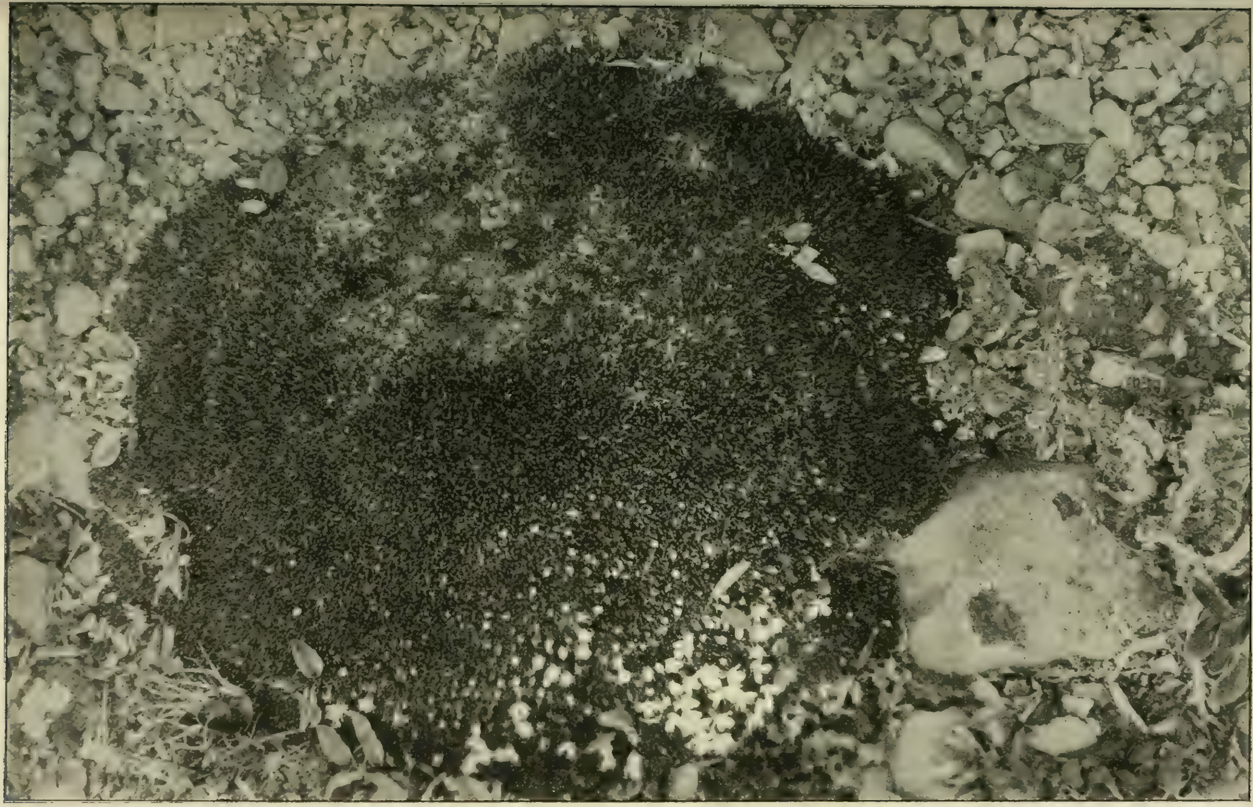

Fig. 4. *Silene acaulis*, 1/3 nat. size, phot. CHR. KRUUSE.
Gravelly bottom, Turner Sund, The cape. 27. 7. 00. The south side of the tuft is covered with flowers and flower buds, whereas its northside is killed by the wind (a few leaves of *Polygonum viviparum*).

was very conspicuous with its deep red leaves; besides the small-leaved form of *Dryas octopetala.*

Vascular plants from Cape Dalton and Turner Sund.

Dryas octopetala and *f. minor.*
Potentilla maculata f. hirta.
— *pulchella.*
— *emarginata.*
— *nivea.*
Sibbaldia procumbens.
Chamænerium latifolium.
Empetrum nigrum.
Silene acaulis.
Melandrium apetalum.
— *triflorum.*
Sagina nivalis.
Alsine biflora.
— *verna.*
Arenaria ciliata v. humifusa.
Stellaria humifusa.
— *longipes.*
Cerastium alpinum.
— *trigynum.*
Cochlearia officinalis var.
Draba alpina.
— *crassifolia.*
— *nivalis.*
— *Fladnizensis.*
— *hirta.*
— *arctica.*
Cardamine bellidifolia.
Arabis alpina.
Arabis Holboellii.
Papaver radicatum.
Thalictrum alpinum.
Ranunculus glacialis.
— *pygmæus.*
— *hyperboreus.*
— *altaicus.*
— *nivalis.*
— *arcticus.*
Saxifraga nivalis.
— *stellaris v. comosa.*
— *cernua.*
— *rivularis.*
— *decipiens.*
— *tricuspidata.*
— *oppositifolia.*
Sedum Rhodiola.
Veronica alpina.
— *saxatilis.*
Pedicularis hirsuta.
— *lapponica.*
— *flammea.*
Euphrasia latifolia.
Pyrola grandiflora.
Arctostaphylos alpina.
Phyllodoce coerulea.
Cassiope hypnoides.
— *tetragona.*
Rhododendron lapponicum.
Vaccinium uliginosum.
Campanula uniflora.
— *rotundifolia.*

Taraxacum croceum.
Hieracium alpinum.
Antennaria alpina.
Erigeron uniflorus.
Arnica alpina.
Koenigia islandica.
Polygonum viviparum.
Oxyria digyna.
Salix herbacea.
— *glauca.*
— *arctica.*
Betula nana.
Juncus biglumis.
— *triglumis var.*
— *trifidus.*
Luzula spicata.
— *confusa.*
— *spicata.*
Eriophorum Scheuchzeri.
Carex nardina.
— *ursina.*
— *scirpoidea.*
Carex glareosa.
— *rupestris.*
— *rigida.*
— *salina v. subspathacea.*
— *capillaris.*
— *pedata.*
Alopecurus alpinus.
Trisetum subspicatum.
Phippsia algida.
Glyceria vilfoidea.
Poa glauca.
— *alpina.*
— *cenisia.*
— *pratensis.*
Festuca ovina.
Calamagrostis arundinacea.
Lycopodium Selago f. appressa.
Cystopteris fragilis.
Woodsia ilvensis.
Equisetum variegatum.
— *arvense.*

Dunholm (N. Hartz).

On July 30th we went on shore for a couple of hours on this small island, a low split basalt islet, the highest summit of which lies abt. 30 m above the level of the sea. Over a large part of the island is a white covering of salt. Sun lit as it lay during our stay, in the midst of the dense sea of fog, surrounded by the crackling ice and made a kind and smiling impression upon all of us.

The vegetation is a pure strand vegetation; but 7 species of phanerogams were found: *Glyceria vilfoidea, Phippsia algida, Carex glareosa, C. salina v. subspathacea* and *C. ursina, Cochlearia officinalis v. groenlandica,* and *Stellaria humifusa.*

In the reddish coloured carpet of the *Glyceria* shone thousands of little white starflowers (*Stellaria humifusa*); here and there low, dense, yellowish-green tufts of *Carex ursina* rose above the carpet, the inflorescenses quite hidden in the tufts. *Carex subspathacea*, this tiny inconspicuous *Carex*-species, which has no doubt been often overlooked in Greenland, was rather frequently intermingled between the *Glyceria*-cover, especially in the immediate vicinity of the beach.

In dry crevices in the basalt the *Cochlearia* grew very tall and vigorous and displayed a surprising abundance of flowers; down in salt marsh it kept lower (3—5 cm).

Around a small pool filled with algae and gnat worms — abt. 25 m above the level of the sea — stood as mentioned in the account of the voyage p. 164, a group of Esquimaux houses; on the ruins of the houses grew the same strandvegetation as everywhere else upon the island, only more luxuriantly on the manured ground. *Alopecurus alpinus*, ordinarily the faithful follower of Esquimaux houses could not be found here; it frequently grows on the slopes towards the open sea; but probably the saltness of the ground has been too much for it here.

On the low rocks brood a great many eider ducks, and between the nests grew *Glyceria vilfoidea* and *Stellaria* particularly high and luxuriantly between big bush-shaped lichens and *Grimmia*-tufts. — In rock crevices, where there was shelter, shade and manure, were found 20 cm high, etiolated *Cochlearia* with very thick fleshy leaves and ripe fruit.

On the west side of the island was a very low tract of land which was partly covered by brackish water, partly above water, yet so low that it is flooded at springflood, protected from the sea by a strandwall. The water was filled with algae, and the drained part of it covered either by dried up algal membranes or by a dense carpet of *Carex salina* v. *subspathacea* together with *Glyceria vilfoidea* (Fig. 5).

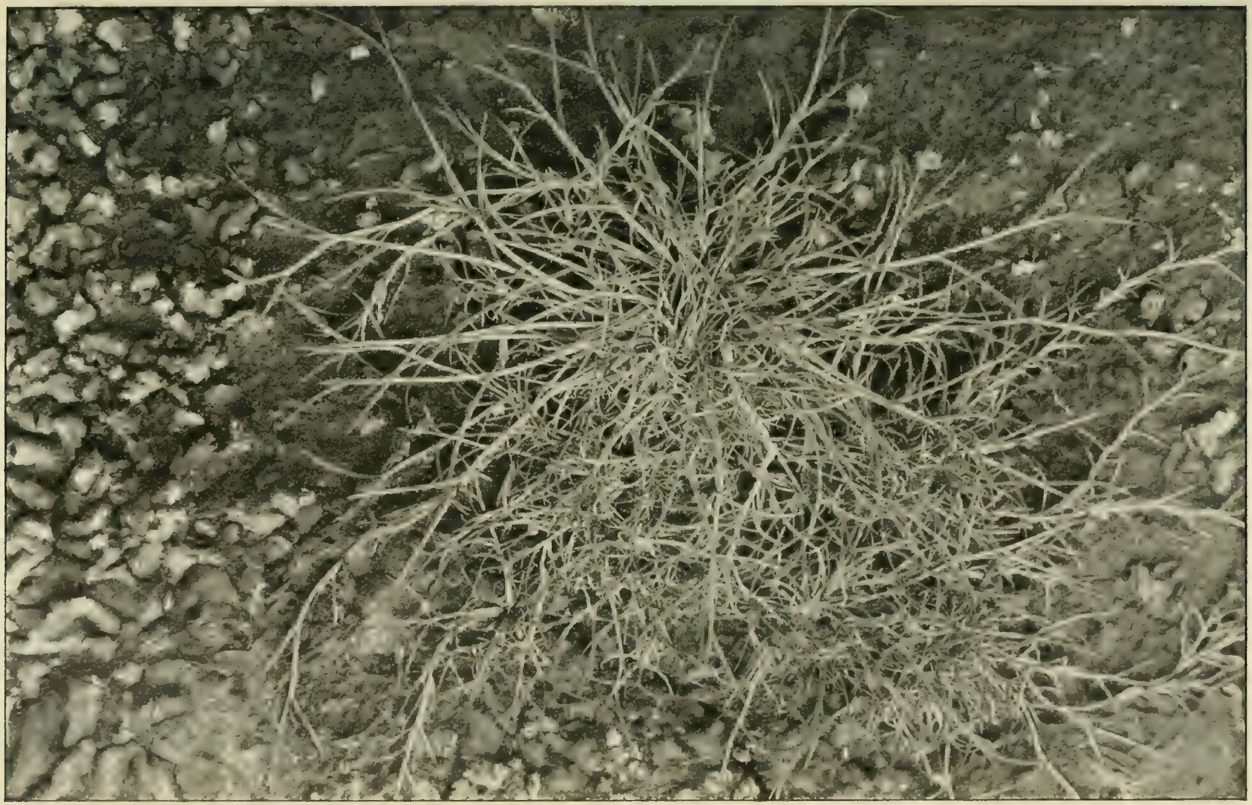

Fig. 5. Isolated tuft of *Glyceria vilfoidea* upon cover of dried up algal membranes. Dunholm. (From photo. by Chr. Kruuse).

Scoresby Sund.

Jameson Land, Dinosaur Cleft (Chr. Kruuse).

On July 31th we landed, as mentioned in the account of the voyage p. 167, about 5 miles north of Cape Stewart by the Dinosaur Cleft. The stream which runs through it is very abundant in water, fills up the whole bottom of the cleft, and seeks its way between and over numerous loose blocks. The cleft is narrow, and its steep sides are covered with débris of sandstone, which slip away under foot. Here and there a bit of solid rock, sandstone or basalt, sticks out and gives shelter to a little vegetation. At the top the cleft widens to a kettle-shaped valley, from which 3 more even, V-shaped river-valleys rise towards the plateau above Neills Klipper. I principally followed the north side of the cleft, where the vegetation was comparatively luxuriant and very abundant in species in contradistinction to the shady side, where snow-drifts and bare gravel alternate with little moss-grown patches.

Up to about 100 metres' elevation above the level of the sea the vegetation was rocky-flat formation, an open growth with the bare soil between the singly placed individuals; but these were tall, powerful, and in full blow, and the reason why they did not form a cover was evidently partly scarcity of water, partly the slipping, rather unstable ground. Wherever solid rock or large blocks hindered the gravel from gliding down were little covers, and especially where a little of the loose soil went right down to the bank of the stream, these were luxuriant. I noticed on this stretch of land the following species all in bloom:

Potentilla maculata, *Cerastium alpinum*, *C. trigynum*, *Draba hirta, D. Fladnizensis*, *Arabis alpina, Papaver radicatum*, *Chamænerium latifolium, Silene acaulis*, *Alsine biflora,*

Saxifraga cernua, *S. oppositifolia*, *Rhodiola, Veronica alpina*, *Pedicularis hirsuta, Antennaria alpina* with *f. glabrata*, *Erigeron uniflorus, Arnica alpina*, *Taraxacum phymatocarpum, Oxyria digyna*, *Polygonum viviparum*, *Salix arctica v. groenlandica, Luzula spicata, Trisetum, Poa alpina*, *Festuca ovina,* and *Equisetum arvense.*

At an elevation of about 100 metres above the level of the sea there was some solid rock, at the foot of which a small strip of grassy slope had found shelter. Its plants were: *Poa glauca, P. pratensis, P. cenisia, Saxifraga nivalis, S. decipiens*, *Euphrasia latifolia*, *Gentiana tenella*, *Campanula rotundifolia* and *C. uniflora.* Beneath and upon the sides of the grassy slope was a shred of heather-moor, made up nearly exclusively of *Vaccinium uliginosum* with a spare intermixture of: *Potentilla nivea*, *Empetrum*, *Stellaria longipes*, *Cerastium alpinum*, *Draba hirta*, *Saxifraga cernua, Phyllodoce coerulea*, *Cassiope tetragona, Campanula rotundifolia*, *Hieracium alpinum, Arnica alpina, Salix glauca*, *Poa glauca*, *P. pratensis* and *Festuca rubra.*

The abovementioned little valley (150—170 m above the level of the sea) has sandy bottom and sides; on its western side is a large snowdrift, and the said three little valleys are filled with snow. The melting-water has dug little riverbeds through the sand in the bottom of the valley. The soil is fresh with sufficient humidity; mould is wanting; but there is shelter against the wind and favourable exposition. The bottom of the valley is covered by an extensive grassy slope. The cover was 5—10 cm high and consisted chiefly of: *Carex rigida*, *C. lagopina, Poa pratensis*, *Sibbaldia procumbens, Cerastium alpinum, Veronica alpina*, *Taraxacum phymatocarpum, Arnica alpina*, *Oxyria digyna, Equisetum arvense,* and *Polytrichum juniperinum.*

As a less constituent part were found intermingled among these dominant species: *Potentilla maculata*, *Epilobium ana-*

gallidifolium, Silene acaulis, Arenaria ciliata, Alsine biflora, A. verna v. rubella, Draba hirta, D. Fladnizensis, D. arctica, D. alpina, Arabis alpina, Thalictrum alpinum, Ranunculus pygmæus (partly *f. Langeana*), *Saxifraga nivalis, S. stellaris v. comosa, S. decipiens, Rhodiola, Cassiope hypnoides, Antennaria alpina, Erigeron uniflorus, Polygonum viviparum, Juncus biglumis, Luzula confusa, Carex lagopina, Alopecurus alpina, Hierochloa alpina, Trisetum,* and *Arctagrostis latifolia.*

Higher up, between 170 and 250 m above the level of the sea, upon the slopes surrounding the valley the loose layers of soil consisted of gravel with numerous much weathered blocks. They were incompletely covered by low heathermoor with large open patches where the gravel slips down. Here were noted: *Empetrum, Vaccinium, Cassiope tetragona, Dryas octopetala, Arctostaphylos alpina, Betula nana, Salix herbacea, Pedicularis lapponica, Carex nardina, C. rupestris, C. misandra, Hierochloa alpina, Pyrola grandiflora* and *Draba alpina.*

Finally the open tableland above Neills Klipper was covered by rocky-flat formation, the most conspicuous plant of which was *Salix groenlandica.* It did not rise 3 cm above the ground, the boughs were at most 5 mm thick and not exceeding 40 cm in length with very few leaves. After the willow *Dryas octopetala f. minor* and *Papaver radicatum* were the most prominent plants, and the vegetation is exactly congruent with the description given by Hartz in "Medd. om Grl." XVIII, p. 135. This vegetation stretches, as far as we have been able to ascertain, over the whole east side of Jameson Land along Neills Klipper, and is succeded only in valleys and beds of brooks by heath or pools. It certainly is dependent on the wind-open nature of the tableland; here the snow can only make a very thin cover in winter; it melts quickly away, and the place is soon as dry as a bone. No perennial plant can rise considerably above the ground, as in that case it

would be dessicated or worn off here where no shelter is to be had and the blocks themselves scarcely rise 5 cm above the bottom. The more wonderful then it is to find in this naked rocky-flat formation so many musk-oxen as was the case. I saw myself two flocks; others of the landing party saw two other flocks and some single bulls, and in the neighbourhood of this place DEICHMANN later on killed 14 of these animals. It is, however, an unquestionable fact that the musk-ox chiefly feeds on the leaves and young shoots of *Salix arctica*, and this is just the place where it is likely to find them in the greatest extent, and I am apt to think that it takes to the rocky-flats in winter also, because the snow-coating is thin up here and accordingly easily broken through. In summer it is not found in the lowlands of Klitdalen, and even the luxuriant grass-meadows around the ponds upon the Liverpool Land were only sparely grazed. The clipping of the grass we saw here was irregular, was found closest to the water, always accompanied by great quantities of excrements of geese, and therefore surely due to these animals. On the contrary, great quantities of the manure of musk-oxen together with plain vestiges of grazing were found upon the flat abunding in *Salix* and *Dryas* at Jameson Land east of Nathorst Fjæld, and in the brook-valley north of this were seen some lone animals.

From the Dinosaur Cleft the voyage was carried on to the Fame Islands, where we lay at anchor from the 1st to the 10th of August.

Fame Islands (Chr. Kruuse).

The Fame Islands are a small group of little islets with low rocks, among which are low, nearly horizontal flats consisting of clay and gravel. The single rocks have evidently been separate islets at a time when the height of the water

was greater, and then a considerable precipitation has taken place in the little tranquil sounds. Now the flats lie 2—5 m above the surface of the water somewhat inclined towards the beach, which is reached in rather narrow interstices between the rocks. Here the surface gets a litle more curved downwards and ends in a small bluff, where the sea is at present eroding. Their surfaces are strown with small flat stones (up to

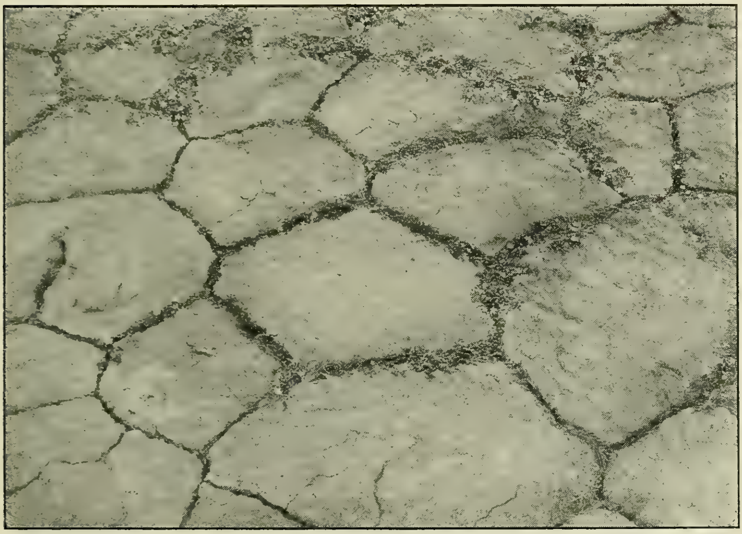

Fig. 6. Young "Rudemark" with *Stellaria humifusa* in the crevices. Fame Islands. (From photo. by Chr. Kruuse).

10 cm in diameter) covered with a rather scarce growth, especially towards the centres; but thus the condition of the bottom shows the plainer. During our stay the bottom was completely dry, stonehard and cracked into irregular, polygonal checks with 5 or 6 sides and greatest diameter at a right angle with the slope ("Rudemark", fig. 6—8). The cracks separating them are up to 6 cm broad, and one may introduce into them a 17 cm long straw; but they are doubtless often much deeper. I saw them in all developmental stages, now one year old filled

with *Stellaria humifusa* (see fig. 6), *Cochlearia officinalis* f. *minor* with numerous cotyledonous plants, *Glyceria vilfoidea* or *Dryas*, now new ones, which are still standing with sharp edges without any vegetation, or beginning ones, which are as yet represented only by fine scratches.

It was not until I saw the outmost, arched parts of the check-field that I had a clear understanding of the formation

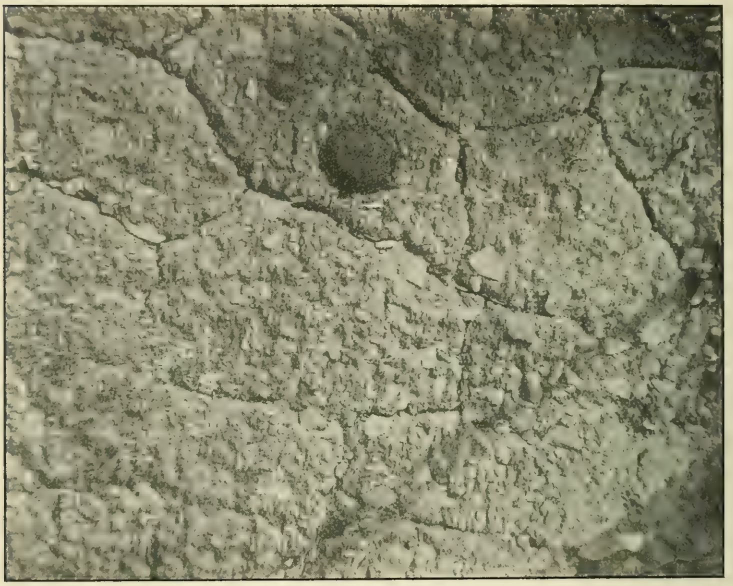

Fig. 7. Sliding clay ("Rudemark") with semi-covered *Silene*-tufts. Fame Islands. (From photo. by Chr. Kruuse).

of this net of cracks. Here the clay was evidently in movement in the wet season. In the spring the whole mass, soaked and plastic, will slide gently downwards to the beach, where the breakers successively lick it away. The bottom is here naked, at the most covered with flat pebbles, but here and there, with long intervals stand tufts of *Silene acaulis*, *Armeria sibirica*, *Arenaria ciliata*, *Taraxacum phymatocarpum*, *Stereocaulon denudatum* v. *pulvinatum*, *Cetraria*

nivalis. These are all of them densely tufted plants with a powerful, deepstriking main-root anchoring them solidly. The individuals are vigorous — the biggest *Silene*-tuft that I saw was 8 cm in diameter — but on all sides surrounded by the clay which rises 8—14 mm above the borders of the tufts (see fig. 7); here and there are tufts, which are inundated barring the inmost shoots, and dead tufts, which have evidently once been buried, but have been bared again by abra-

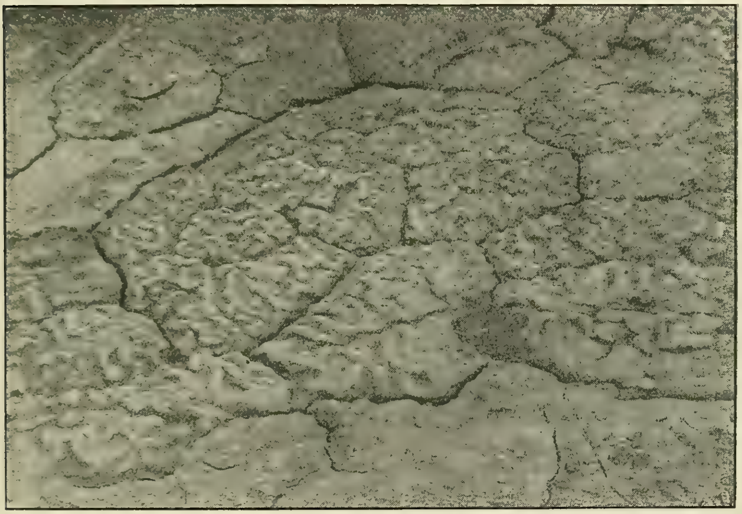

Fig. 8. Young "Rudemark". A gently inclined flat of clay covered with algæ and Hepaticæ with new crevices. Fame Islands. (From photo by Chr. Kruuse).

sion, are also seen. Here the crack-systems go across the flat (at right angles to the inclination) but are little arched, so that a series of corresponding checks make an arch with the convexity towards the sea. It is evident that the extremes of the clayey flats "trail" against the rocks, so that the movement is strongest in the middle.

Wherever the humidity has kept a little longer in the summer the surface is covered by a blue-gray, abt. 5 mm thick layer of algae with a spare admixture of *Anthelia ju-*

lacea, which in the checks lies in irregular folds of abt. 7 mm height (see fig. 8).

The inmost part of the flats, which is highest located, is very much washed out, and here the loose layers of soil consist of sand and gravel, which is nearly bare and drifts a little; here are only found a few decumbent, highly windworn individuals of *Salix groenlandica* (with *Melampsora arctica*) *Silene* and *Elyna Bellardi.*

In crevices and upon ledges as well as upon the rocks is found a powerful vegetation consisting of:

Dryas octopetala, *Potentilla pulchella f. elatior, P. nivea*, *Empetrum, Silene, Melandrium triflorum*, *Stellaria longipes*, *Cerastium alpinum*, *Arenaria ciliata*, *Lesquerella arctica, Saxifraga oppositifolia f. pulvinata*, *Rhodiola, Arctostaphylos alpina*, *Pedicularis hirsuta, Taraxacum phymatocarpum*, *Erigeron uniflorus, Arnica alpina, Polygonum*[1]), *Salix glauca*, *Betula nana, Luzula spicata, Carex incurva*, *Poa alpina, P. glauca f. elatior*, *P. pratensis,* and *Cystopteris fragilis.*

Finally *Glyceria vilfoidea*, *G. angustata, Stellaria humifusa, Cochlearia officinalis v. groenlandica*, and *Carex ursina* grow near the sea.

Jameson Land of Fame Islands (Chr. Kruuse).

From Vargodden towards Nathorst Fjæld extends a low sandy flat crossfurrowed by the delta arms of the streams and by dry, abandoned ditches; it is evidently a marine terrace, the building up of which is still being continued, an extensive flat with 15 cm of water (and more), which is partly dry at low water, stretching outside the present, feebly marked coastline. Its demarkation towards the deep water is distinctly marked

[1]) Very much injured by *Puccinia septentrionalis* and *Sphaerella hydropiperis.*

by a steep fall. The coastline is indicated by a very low (20—40 cm high) strand-wall of sand with sticks, leaves and, although very sparely, algae. It is thinly covered with *Glyceria distans.* Within, the sandy flat is low (hardly 10 cm above the level of the sea at high water), nearly plane, moist (groundwater in 7 cm depth), with many empty watercourses. It has a very scarce growth of *Glyceria vilfoidea, Potentilla pulchella, Stellaria humifusa* and *Cochlearia groenlandica.* There are abt. 2 metres or more between the respective tufts. Inside this extensive flat is found an old beach-line where the land rises to a flat 40—60 cm above the present height of the water. On this flat, where the groundwater is only found in 30—35 cm depth, grows *Glyceria distans, Carex ursina* and *Potentilla pulchella,* and also, in smaller numbers, *Salix arctica* and *Taraxacum phymatocarpum.* There is, on an average, 2—3 metres between the tufts, and the sand is elsewhere completely bare with the exception of some small flat depressions, viz. sanded-up watercourses, where the sand is namely slightly greenish from algae *(Confervae* and *Desmidiaceae).*

The individuals are strongly tuftshaped *Carices* and tunicate *Glyceriae,* and leaves and stalks are covered by clay and sand-dust. The surface of the sand is hard, sand drift is not seen, no more are dunes; the whole surface is full of little fissures and gives one the impression of being inundated in winter and during the period of melting.

Within this flat the land rises gently to abt. 1 m's height above the level of the sea; only here and there are seen the half obliterated vestiges of an old terrace-border. It is covered with *Salix groenlandica* in great specimens together with some few *Alopecurus alpinus*; here also are great open intervals between the tufts.

This *Salix*-flat rises evenly inwards till a height of abt. 2 m above the level of the sea and becomes more dry. The surface of the sand is now loose, it drifts.

Fig. 9. Drift-sand with *Salix* and *Festuca rubra*. In the fore-ground the dune is broken down showing dark streaks of former vegetation-cover. Jameson Land of Fame Islands. (From photo. by Chr. Kruuse).

On the flat is a narrow, 2—3 (sometimes 4) m high sandy area, extending lengthwise from north to south, the surface of which is loose sand covered with *Festuca rubra* and *Poa pratensis,* standing with intervals of abt. 5 cm between the straws. Towards N. and N. E. the sand-area has nearly vertical walls (fig. 9) in which are seen undulating, irregular, wedging out, humous dark layers of a thickness of up to 6 cm and varying in extension. Besides sand these dark layers contain clay and some roots, both fresh and mouldered, but no remnants of leaves and stems.

The slopes have evidently been formed by the wind which has broken up the sand and carried it towards south; thus, there is in front (north of them), a flat with numerous little hillocks of sand (30—60 cm in diameter and 20—40 cm high) formed around or, at any rate, covered whith *Carex incurva;* it is evidently the abrasion-flat where the sand has formely been located. At the south end of the sandy area the sand settles again in loose, softly undulating heaps with windstreaking in the direction E.—W. In and upon the sand grows *Salix arctica* f. *groenlandica* (possibly also *S. glauca* f. *subarctica*) and *Carex incurva*, a more secondary constituent being formed by *Chamænerium latifolium* and *Poa pratensis. Salix* forms metrehigh, on the leeside (S) freshgreen tufts, the interiors of which are filled with sand, and which are covered on the windside (N or NNW) by the white micaceous sand, which has only a slight inclination.

The willows evidently thrive exceedingly well under these conditions, the individuals are bigger and more vigorous than usually, boughs and stems certainly are seldom more than 1 cm thick but, in return, rank, and the ramification is richer than usual. The leaves are large and close-sitting, and fructifications are very common. The year-shoots are, on an average, 7 cm long and erect or at right angles with the surface of the sand. The willow is best characterized as espalier on the

sunny side and lee-side of the sand (these terms being identical here). That no vigorous main trunk is found, as generally with the espaliers, is probably due to the travelling of the sand.

The sand-drift surely takes place principally during the summer halfyear, as the sand the other time must be frozen and covered by snow and snow-crust; were the contrary the case one would be sure to see also traces of sand-wear upon the older, 2—3 years old shoots; but such are not seen. On the other hand the young 1—2 year old shoots forming the windward side of the bush are, as a rule, eroded and either killed or dying, and the destruction is slowly advancing towards the leeside, while at the same time its shoots are being covered by sand. Sometimes the wind gets the upper hand, and the bush is totally killed, and the sandhillock is demolished; the remnants of it are then seen as an irregular, one metre high cone, loosely covered by free-hanging branches and roots of willows and showing the above mentioned stratification.

Between the *Salix*-tufts are also seen the peculiar sand-formations which we named "coffins" (cpr. p. 399 and fig. 24). They are longish, narrow elevations with steep sides, which have here the direction E—W, i. e. from Nathorst Fjæld towards Hurry Inlet, and are here covered whith *Festuca rubra* v. *arenaria, Carex incurva* and *Poa pratensis.*

Festuca, which is the most frequent one, has horizontally creeping rhizomes and 15—20 cm high single straws, which at the ground are encircled by old straws and sheaths. Viewed from a distance it forms a rather dense, undulating covering. *Poa pratensis* is found much less frequently, but has a similar growth, still its lateral shoots are not so long as those of the former. *Carex incurva* forms here little tufts of abt. 10 cm height with closely placed leaves and straws encircled by remnants of old leaves; it can, however, also form a very open, abt. 5 cm high cover. It sticks more firmly to the sand than *Festuca,* and can endure considerably more erosion; it is there-

fore also this latter which remains, when the sand is torn up by the wind. The bottom between these gramineous plants is, both upon the "coffins" and upon the sandy flat, quite bare; neither mosses nor lichens are found.

Within this sandy area the sandflat was continued somewhat farther with an elevation of abt. 1 m above the level of the sea, but sank again to a height of abt. 70 cm in a very broad, flat depression. This is evidently an old bed of the stream which comes from the northern side of Nathorst Fjæld, whereas the above-mentioned sandy area represents a delta-island.

The depression was cross-furrowed by ditches, which had at some places, in a depth of 50—60 cm, a little stagnant water. These are beds of brooks, which in this spring have been dug out by the melting water from Nathorst Fjæld, but are now on the point of drying up. Their direction is indicative hereof, as they follow the line of gravitation from the mountain, but later on incline towards south and are lost in the large flat of the old riverbed. I suppose that the latter is flooded in the snowmelting period.

On the edges and sides of these ditches grew a hydrophilous vegetation made up of: *Equisetum variegatum* f. *anceps*, *Juncus biglumis, J. castaneus, Alopecurus alpinus* and, here and there, little specimens of *Salix arctica.* Between these the sand was coherent and greenish-coloured by algae, and in very moist spots grew little specimens of *Marchantia polymorpha.*

From within the depression the land rises evenly and is covered by a rather dense, abt. 5 cm high heath, formed by:

Dryas octopetala, Salix groenlandica, Pedicularis hirsuta, Stellaria longipes, Polygonum viviparum, Elyna Bellardi and *Alopecurus alpinus.* All these plants were greatly clipped by grazing, and frequent excrements bore witness that the musk-oxen had been here recently. Besides the bottom was undermined by lemmings so densely, that there was nearly one hole

per one m^2, and many of the plants, yet chiefly *Polygonum* and *Salix,* were distinctly marked by the jaws of this small animal. Nevertheless I did not see during my stay here one single lemming above the ground; nor did the musk-oxen show up here during the whole of our long sojourn at the anchorage. On the contrary the ground was in many places covered with the footprints of wolves, and a few wolves that we saw at Vargodden were making for this place.

In the heath were dominant: *Dryas octopetala* f. *minor, Betula nana, Vaccinium uliginosum f. microphyllum* and *Arctostaphylos alpina.* Among these were found in lesser numbers: *Chamaenerium latifolium, Papaver radicatum, Draba alpina, D. hirta, Lesquerella arctica, Arabis alpina, Saxifraga oppositifolia, Pyrola grandiflora, Pedicularis hirsuta, Arnica alpina, Polygonum viviparum, Oxyria digyna, Salix glauca* v. *subarctica, Elyna Bellardi, Carex lagopina* and *Trisetum subspicatum.*

In the rocky-flat formation above *Chamœnerium latifolium* and *Arnica alpina* especially attracted notice by their numbers and the size of the flowers. The mountain-side itself was very poor in vegetation, cross-furrowed as it was by clefts of wild brooks, whose stony ranges and ditches also extended over the foot of the mountain, where they appear, however, with less force.

Liverpool Land of Fame Islands (Chr. Kruuse).

The coast of Liverpool Land stands, at the head of the inlet, with a steep bluff, while the more southern coast slopes down gently; on Jameson Land it is the reverse. Here the head of the inlet is flat, whereas Neills Klipper farther south descend abruptly to the sea with a step talus. This is surely due to the condition of the currents in Hurry Inlet. Along Liverpool Land the current runs in-shore at flowing tide,

and as there is here no stream of any importance, there is no deposition of layers, but a demolition is going on of formerly deposited sediment. Along Jameson Land the current runs at ebbing tides off-shore (southwards), carries along the enormous sand masses from the streams of Klitdalen, and deposits them northernmost along the western side as big sand flats.

Just opposite to the Fame Islands the coast bluff of Liverpool Land is 20—25 m high and inclines abt. 30° towards the horizon. It consists of sand, sandy clay, and gravel with boulders of up to the size of a hand. At the top, and in the nearest vicinity of the sea, it is completely vertical; it is evidently an old marine terrace (which is also suggested by spare shell-fragments) formed by materials from névé-brooks at a time when the Liverpool Land was covered by the inland-ice. Outside the beach a new terrace is forming all the way towards the Fame Islands; there is from 20 to 50 cm water upon it.

The bluff towards the sea is sparely covered with *Chamaenerium latifolium, Braya purpurascens, Lesquerella arctica,* and down-slidden parts of the vegetation of the surface.

The surface of the terrace is a stony plain, densely paved with little flat boulders and with a thin clayey coating between the stones. Sand drift is not found. It is sparely covered with low specimens of: *Dryas octopetala* f. *minor* and **integrifolia, Erigeron uniflorus, Polygonum viviparum* f. *alpina, Salix arctica* f. *groenlandica, Elyna Bellardi, Carex nardina, Poa glauca,* together with the following lichens: *Cetraria nivalis, C. islandica* v. *crispa, Parmelia saxatilis, Psora atrorufa, Stereocaulon denudatum* v. *pulvinatum, Xanthoria vitellina, Urceolaria scruposa* etc.

The distinctly tuftshaped individuals are much eroded, it being not, however, possible to show any precisely marked direction of the wind. Two *Erigeron uniflorus*-tufts, which grew hardly 25 cm apart from each other, were injuriously affected,

one from the south, the other from the north, and the case is much the same with the *Dryas*-specimens (Fig. 10). The ground between the phanerogams is mainly naked, and even the lichens are greatly cowed and worn. The scantiness of the vegetation is, however, due chiefly to scarcity of water and, secondly, to want of shelter.

Fig. 10. *Dryas octopetala*. Liverpool Land. A highly windworn specimen. del. H. Olrik.

At a somewhat greater distance from the bluff the surface descends to flat depressions partly without outlets, partly with outlets in narrow clefts, which cut through the terrace and are formed by brooks, now partly dried up or nearly waterless. Here is found a somewhat richer and, above all, higher vegetation, which is, however, only exceptionally able to cover the bottom. I noted:

Melandrium apetalum, Stellaria longipes, Saxifraga oppositifolia, S. nivalis v. *tenuis, Armeria sibirica, Pedicularis hirsuta, P. flammea, Rhododendron lapponicum, Vaccinium, Arnica alpina, Salix groenlandica, Polygonum, Juncus biglumis, J. arcticus, J. castaneus, Eriophorum Scheuchzeri, E. polystachium, Carex nardina, C. rigida, C. rariflora, C. rupestris, C. lagopina, C. ursina, C. capillaris, Glyceria Vahliana* and *Equisetum arvense.*

Farther inward, towards the east, this vegetation, which in the most humid localities had the appearance of pools without continuous cover, is continued in a luxuriant *Cassiope*-heath with a dense, 10—15 cm high cover. The few herbs were quite secundary. I noted here:

Potentilla maculata, Cerastium alpinum v. *lanatum, Draba alpina, Saxifraga oppositifolia, Pedicularis hirsuta, Erigeron*

uniflorus, Luzula confusa, Carex nardina, Hierochloa alpina and *Poa alpina.*

Through the heath-flat stretched some winding 5—15 metres high gravelly (clay and sand with boulders) walls; their sides were rather steep (20—25°), the surfaces slightly arched or flat, from 2—10 m broad. They were covered with a rather open vegetation consisting of:

Potentilla nivea, *P. maculata*, *Sibbaldia*, *Cerastium alpinum*, *Alsine biflora*, *A. verna*, *Melandrium triflorum, Rumex acetocella, Draba alpina, D. hirta*, *Arabis alpina, Saxifraga cernua*, *S. decipiens*, *Armeria*[1]), *Pedicularis flammea*, *Campanula uniflora.*

On the plain between the walls are found numerous shallow ponds surrounded by meadows or bogs, which are evidently flooded in the spring time. The meadows, which are smaller in extent, are chiefly made up of *Carex pulla* (with *Leptosphaeria epicareta), C. scirpoidea, Poa pratensis, Arctagrostis latifolia*, *Phippsia algida, Juncus castaneus*, *Koenigia islandica, Cardamine pratensis*, *Ranunculus altaicus* and, nearest the margin and in the water, *Pleuropogon Sabinei* (fig. 11). It stands lonely or, at most, two or three specimens together without covering the bottom, which consists of sand with a 1—2 cm thick layer of mud, preferring seemingly little sheltered bays between blocks of stone. It is by no means rare here, but blooms sparely, and is when sterile difficult to recognize, for which reason it is easily overlooked, the more so because its habitat is one of the most disagreeable places in the country on account of the countless hosts of gnats hovering round the water. They were to the highest degree hampering during the work, so much that e. g. I was hardly able to keep the lens of the apparatus free of them while photographing.

The water in the ponds is greatly filled with gnat-worms, but I did not see other insects or crustacea. In the water it-

[1]) Attacked by *Pleospora platyspora.*

self stood a very thin-stemmed form of *Equisetum arvense, Hippuris vulgaris*, and *Ranunculus hyperboreus* in small numbers, so that they were nowhere able to cover the bottom or even import to it a green colour; in somewhat greater quantities were found *Amblystegia*, and along the border *Spaerocephalus turgidus* and *Pohlia albicans* v. *glacialis.*

The tufts of the bogs were covered by *Carex scirpoidea, C. pulla, Arctagrostis latifolia, Ranunculus pygmaeus, Cassiope*

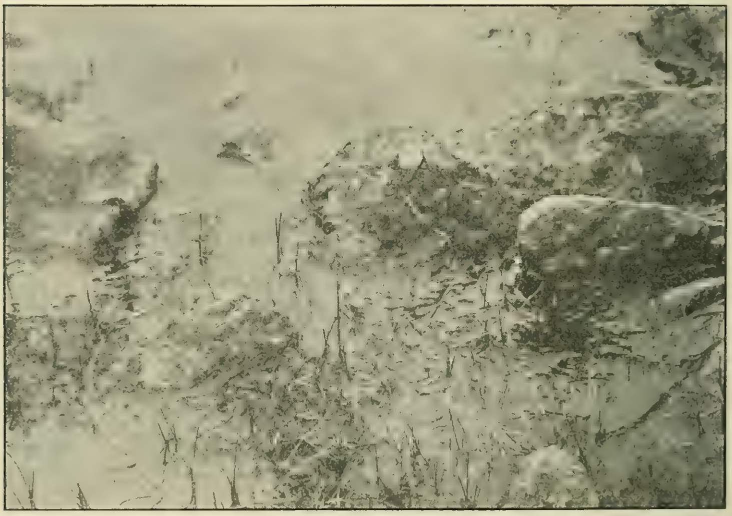

Fig. 11. *Pleuropogon Sabinei* in the margin of a pond. Liverpool Land, Hurry Inlet. (From photo. by Chr. Kruuse).

hypnoides, Pedicularis flammea, Equisetum arvense and *Marchantia polymorpha, Russula* sp., *Boletus scaber* and *Lycoperdon favosum.*

The tufts were abt. 30 cm high and their shady sides completely covered by the dark green thallus of *Marchantia;* the checks were quite bare of any vegetation.

Both the meadows and the pools were highly clipped by the grazing of geese, the excrements of which were found in abundant quantities on the banks; also the musk-oxen seek the

ponds, although, probably, only in order to drink. In the soft bottom I often saw their traces, on the other hand no regular grazing was found nor any of their manure.

Inside the low country the archæan rocks rise in gentle, iceground slopes, and here the vegetation changes completely in character. The rather meagre *Cassiope*-heath is succeeded by a luxuriant *Vaccinium*-heath with a dense cover of from 15 to 20 cm height (Fig. 12). The bushes are up to 36 m^2, fresh green or red in the top from *Exobasidium* and sometimes spotted by *Lophodermium maculare* and have abundant ripe fruit. The formation is a nearly pure Vaccinietum, and merely secondarily was found here and there a specimen of *Empetrum* or *Cassiope tetragona;* on the contrary, there were large patches with *Betula nana,* especially at the steepest spots with southern exposition; the branches rose here to 25 cm above the ground, and the cover was completely dense. The leaves had, however, already begun to assume their orange-tawny, autumnal hue, and the fruit was ripe. With regard to herbs the only ones found here were *Cerastium alpinum, Pyrola grandiflora*, *Arnica alpina*, and *Polygonum viviparum* f. *vulgare* (Fig. 12).

About where the *Vaccinium*-heath borders on the lowland was found a semicircular wall of gravel and stones with its concave side facing the mountain side. Into it ran a small brook, whose water collected to a pool in the middle and disappeared into the ground, to reappear as springs farther down the slope. An arm of the brook turned the southern side of the wall. The inward hollow was covered, between glacial blocks, with *Vaccinium*, only the pool in the middle was devoid of vegetation. Towards the summit of the wall *Vaccinium* became more small-leaved (f. *microphyllum*), low and adpressed to the ground, and on the upper side very leafless, so that the lichen-covered ground was seen everywhere. On the arched upper-side of the wall, and only here, were found some dead, greatly

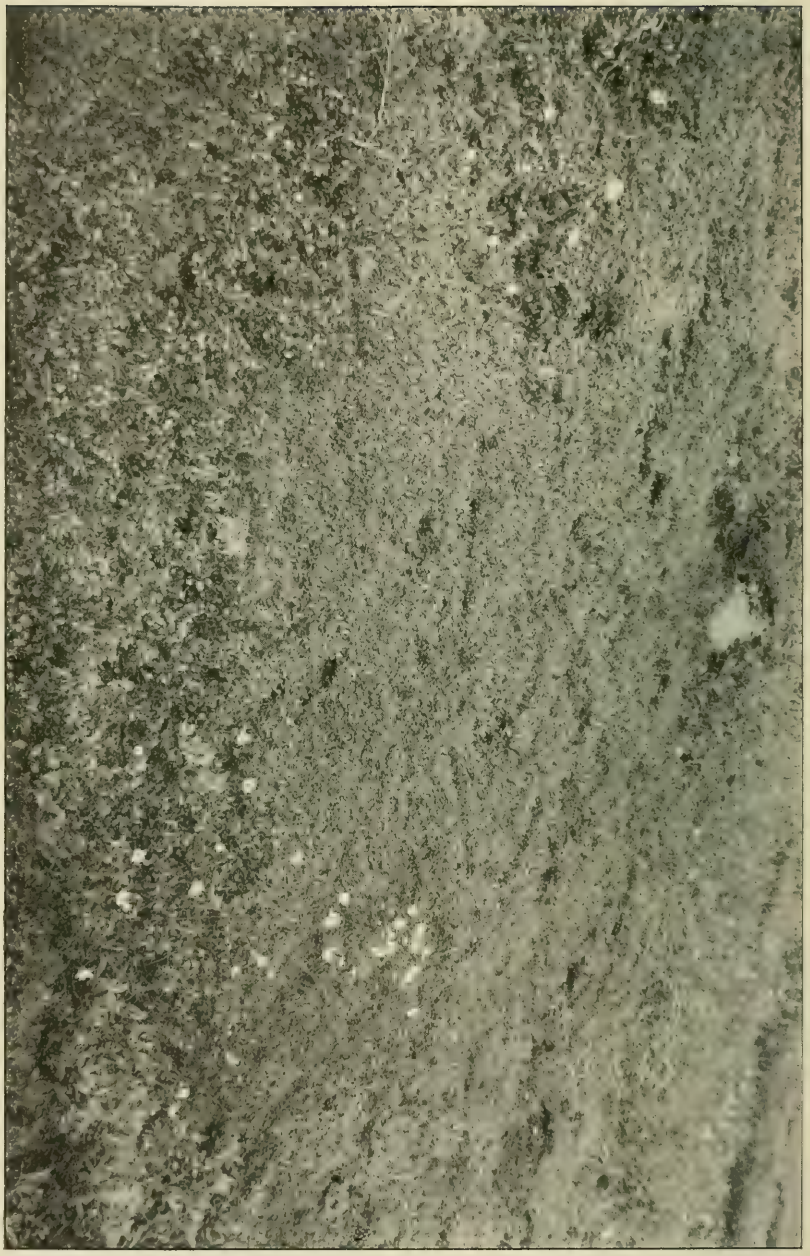

Fig. 12. Luxuriant *Vaccinium*-heath with *Cerastium alpinum* and *Salix*. Liverpool Land in Hurry Inlet. (From photo. by Chr. Kruuse).

dried up, weathered individuals of a *Salix* (species indeterminable) lying closely adpressed to the ground. The stems had a very irregular section, by the ground they are 6,8 cm in compass and have abt. 100 year-rings. The biggest among them may have covered abt. 2 m^2 when in life, most were still so firmly rooted that it required some exertion to lift them from the ground. The root was not decayed. The highly bilateral arrangement of the stems, without considerable upright branches or rests of such, suggests that they have been decumbent individuals which have lifted their year-shoots only 15—25 cm above the ground. The most remarkable feature about these *Salices* is that we did not find anywhere on the localities living *Salix*-individuals of a corresponding size. The only place where I did note such a one is at the North-eastern bay, where an espalier reached 1 m in height and 1,5 m in length up an erratic boulder.

Southwards, the mountains of the Liverpool Land rise to a rather even, slightly undulating table-land ending at last in Cape Tobin and Cape Hope. Its surface is, as mentioned by Koch (Med. o. Grl. XXVII, p. 293), snowless and covered with boulders, the surface being very frost-blasted as well. The vegetation is exceedingly scarce. I followed the coast, in a distance of abt. 1 mile, from the middle of Hurry Inlet till Rosenvinge Bugt when, on the 11th of August, I was ashore to search for musk-oxen, but only noted down the following species:

Vaccinium uliginosum, Salix arctica, Cassiope tetragona, C. hypnoides, Saxifraga oppositifolia, Cardamine bellidifolia, Luzula confusa, Amblystegium exannulatum, A. turgescens, A. Sendtneri, Cephalozia bicuspidata v. *cavifolia, Anthelia nivalis, Jungermannia alpestris, Cetraria islandica, Stereocaulon, Cladoniae* with more lichens.

Along the sea-coast, which I followed when returning, were found here and there sandy or clayey flats covered with *Calamagrostis arundinacea* and *neglecta, Trisetum, Poa pratensis* and

Festuca rubra, which towards the sea changed to salt-marsh vegetation, with *Carex glareosa, C. salina* v. *subspathacea, Glyceria Vahliana, G. vilfoidea, Stellaria humifusa* and *Arenaria ciliata.*

Klitdalen (Chr. Kruuse).

While referring to the following remarks of Hartz on the stony plains by Bielven I shall here mention those by me, partly in the company of Hartz, visited parts of the valley.

On the 2nd, 5th and 8th of August we undertook an investigation of the nearest parts of Klitdalen. Landing is effected with no difficulty on the eastern side as far as to the low range of hills (see Koch, Med. o. Grl. XXVII, p. 288). At Vargodden is water enough, but farther west large tracts become dry at low water. The stream was unnavigable, even to our flatbottomed steel pram.

The hill-range divides the valley in two different parts, a western pervaded by Ryders Elv and filled with deposits of sand and gravel, the materials of which are, for the greater part, derived from the sedimentary formations of the Jameson Land, and the eastern, which is a marine terrace, a continuation of the formations, described on p. 377, whose materials originate in the archaic mountains of the Liverpool Land and is, to a great extent, stamped by the glaciers formerly issued from its névé.

The hill-range itself belongs to the archaic side and ends this towards the west; it consists of solid rock, but this is, for the greater part, hidden under loose soils. Its southern end consisted of clayey sand sparely strown with boulders; closer to the stream was clean sand. The ground was rich in water, especially wherewer the clay was dominant, small springs were soaking the soil without, however, forming pools or brooks.

On dry spots the surface was cracked or forming small hillocks separated by a net of ditches, the bottoms of which

lay 4—12 cm lower than the middles of the hillocks. The vegetation was found in the ditches, while the hillocks were, as a rule, bare.

On the humid clayey bottom the vegetation was heath made up of: *Cassiope tetragona, Vaccinium uliginosum, Silene acaulis*, *Pedicularis hirsuta* and *Papaver radicatum.* Less frequently were found: *Dryas octopetala*, *Cerastium alpinum v.*

Fig. 13. The border between *Casssiope-* and *Dryas*-heath. Klitdalen. (From photo. by Chr. Kruuse).

lanatum, *Stellaria humifusa*, *Draba alpina*, *D. nivalis*, *D. arctica*, *Saxifraga oppositifolia*, *Pyrola grandiflora*, *Polygonum viviparum, Betula nana* and *Salix arctica* v. *groenlandica.* On the moist spots the vegetation was highly tuft-shaped, and among the heath-bushes were found:

Potentilla maculata, *Ranunculus pygmæus, Saxifraga stellaris* v. *comosa*, *S. aizoides*, *Rhododendron lapponicum, Pedicularis flammea, Juncus biglumis, Eriophorum Scheuchzeri*, *E.*

Fig. 14. Eroded *Dryas*-tuft. In the windworn part the borders between each separate year's wear are plainly visible. Klitdalen. (From photo by Chr. Kruuse).

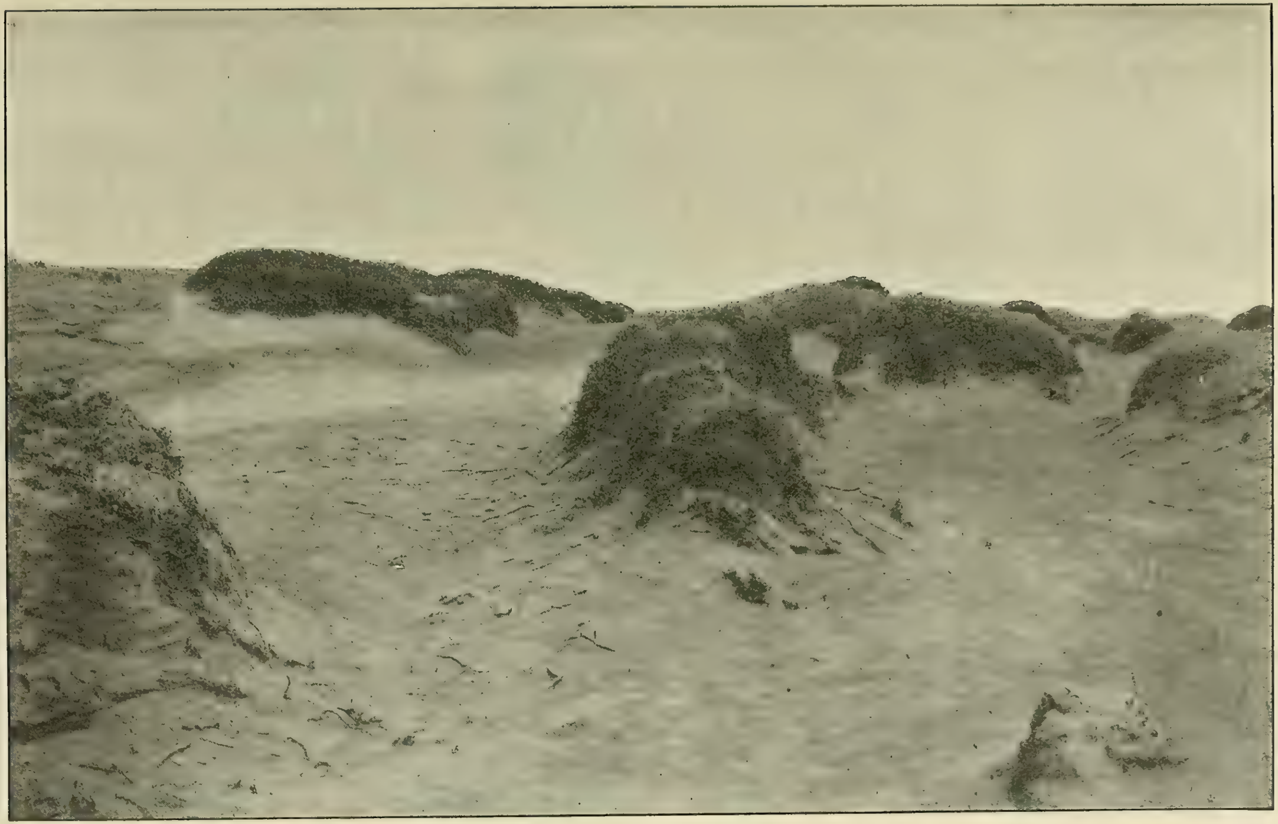

Fig. 15. Sand walls covered by *Salix* and *Chamaenerium*. In the grooves are seen roots and bits of stems denuded by erosion. Klitdalen. (From photo by Chr. Kruuse).

polystachium, *Carex rigida*, *C. rariflora* and *Equisetum arvense.*

The sandy part was covered with *Dryas*-heath or rocky-flat formation with *Salix groenlandica* and *Pedicularis lapponica.* The boundary line between the *Cassiope*- and *Dryas*-heath was very sharp and went as a zigzag line upwards to the south-western corner of the range of hills (fig. 13).

The *Dryas*-heath becomes, towards north, more scarce and is folloved by a rocky-flat formation with widely separated individuals, which are often very windworn (fig. 14).

Close east of the mouth of Ryders Elv on the bare, by the sea partly flooded, flat we found a very peculiar vegetation. There was here a gently arched, somewhat longish hill running parallel with the stream consisting of fine, dazzling white, almost clean quartz-sand. Its surface was furrowed by crevices of a depth of 1—2 m, and of a breadth of 2—3 m, which following the same main-direction as the stream were turning and winding, now widely and distinctly separate, now united into broad channels or round places. Between these, and separating them widely, were numerous, more or less parallel, continuous ranges of fine sand with rather steep sides. Their surfaces were covered with *Salix arctica* and *Chamœnerium latifolium*, and at places, as a lesser constituent part, *Polygonum viviparum f. vulgaris* together with single tufts of *Poa pratensis* and *Festuca rubra* (fig. 15.) The willow was in fruit, whereas *Chamœnerium* was still in rich flowering bestowing on the whole of the localities a magnificent, reddish-purple colour, especially on the southern part of the area, where the walls were highest and most pronounced. The sides of the walls were closely permeated with roots, and in many places these formed a protecting covering; they were, as a rule, fresh with all their bark, whereas at the ends of the walls, the roots were often stripped of the bark, and remnants of bark-bared branches were sticking out from the sand, while

this part of the willow bushes were often dying. There was also some difference between the east side of the walls, which was, as a rule, green, and the western side, which was largely naked and eroded. Farther up the country were found similar sandy areas with *Salix*; but here the walls were not always parallel with Ryders Elv, nor did they always follow the direction of the fall of the slope; the fact is that they were always found on sloping ground, but were apparently diagonally placed.

To the north of this high sandy area the land, which is now covered by a *Dryas* rocky-flat formation, sinks down to a broad hollow by the stream, and is here, to a great extent, sparely covered with *Festuca rubra*. The lowest part formed a nearly circular spot of abt. 30 m in diameter, densely covered by *Calamagrostis neglecta* of a heigh of 25—30 cm Separate from this meadow was found along the banks of the stream and raised no more than abt. 20 cm above the surface of the latter a hydrophilous meadow, which habitually resembled a marshy meadow, the small, sharp-edged, deep, of such a meadow characteristic pools ("Lo'er", cpr. E. Warming: Dansk Plantevækst, I, p. 262. A. Mentz in Rambusch: Studier over Ringkøbing Fjord, p. 90) being found in great numbers. Nevertheless I should not think, although I did not take my levels, that the sea-water can force its way so far up the stream and expel the freshwater. The vegetation here consisted of a dense *Carex incurva*-cover with *Eriophorum Scheuchzeri*, *Arctagrostis latifolia*, *Hierochloa alpina*, *Stellaria humifusa* and mosses: *Polytrichum alpinum*, *Sphaerocephalus palustris*, *Meesea trichodes*, *Bryum neodamense*, *B. ventricosum*, *B. archangelicum*, *Pohlia commutata*, *P. crassidens*, *Tortula ruralis*, *Dicranum congestum*, *D. neglectum*, *Swartzia montana*, *Ceratodon purpureus*, *Amblystegium brevifolium*, *A. turgescens*, *A. Sendtneri*, *Hypnum plumosum*, *Myurella julacea*, *Isopterygium nitidum v. pulchellum*, *Odontoschisma Macounii*, *Cephalozia pleniceps*, *C. divaricata v. grimsulana*, *C. striatula*, *C. asperifolia*, *Ble-*

pharostoma trichophyllum, Anthelia julacea, Martinella Bartlingii, Aplozia sphærocarpa v. lurida, Jungermannia quinquedentata, J. ventricosa and *J. inflata.*

North of this hollow was found a considerably higher area where the sand had been blown together to downs of up to 10 m height in lee of solid rocks; how much of them was sand and how much rock could not be decided with certainty, but the rocks protuding at several places in the northern and north-western sides surely occupy the greater part. The surface of the down is completely smooth, has an inclination of 10—12° towards south and is wholly bare of vegetation. The sand is loose and fine. The sun heats the surface greatly; but the warmth does not penetrate very deeply, which is shown by the under-noted observation taken on the 5th of August at noon.

	On the down	In a *Salix*-bush [1]
Black ball	24°,5	24°
Green ball	25°,5	21°
5 cm deep	15°	13°,3
55 cm deep	0°	—
The air	11°	11

Here some observations by Hartz of the temperature in a south-exposed sandy slope with loose drift sand in Klitdalen may be added; the slope was abt. 1,5 m high., and the sand was dry and warm; the moisture was reached in a depth of 15 cm, the slope was totally bare of any vegetation.

	Aug. 5th 1,20 p. m.	Aug. 5th 4 p. m.	Aug. 8th 7 p. m.
Temperature of the air	+ 8° C.	—	—
Temperature of sand, 25 cm depth	+ 8°,6 C.	9°,4 C.	9°,6 C.
— - — 35 — —	+ 8°,4 C.	8°,1 C.	8°,7 C.
Thermometer with blank ball, just covered by loose sand	+ 35° C.	—	—
In *moist* sand in small cleft at foot of sandy slope, in 4 cm depth	+ 8° C.	—	—

[1]) The bush was not very distant and had the same exposition.

The sand was frozen in a depth of 64 cm and in a profile on the eastside, formed by a half dried up river-bed, ice was seen in a depth of 50 cm below the surface. I suppose the dune receives its increase in the autumn in the shape of a mixture of snow and sand, which thaws during the summer and dries up until the stated depth where the melting-water freezes together to solid ice. (A similar snow-and sanddrift I noticed in 1898 at Tasiusarsik kidtlek near Angmagsalik). At the base of the kiln was found, by the above-named little, somewhat mossgrown, river-bed, a small humid sandy flat covered with *Equisetum arvense* f. *decumbens, Lachnea scutellata* and, at the margin, little tufts of *Eriophorum Scheuchzeri* together with, on a small elevation, a single *Salix arctica* v. *groenlandica* bush.

To the east of the little river-bed were extensive, almost horizontal flats, which, in my journal, I call "Graa Klit"; the soil consists of stoneless, very fine argillaceous sand, which cracks in the summer drought.

They were covered with *Arctostaphylos alpina, Dryas octopetala* f. *minor, Salix arctica* f., *Elyna Bellardi* and *Carex nardina.* None of these plants rises 5 cm above the ground, most often they are covered so strongly that only a few short stem-joints together with their leaves are free; in many cases, indeed, the petioles themselves are covered. None was seen in flower, nor were there any traces of fruit-setting from previous years. They evidently wage a hard war against the dust covering and erosions of winter, all parts above ground being, as I believe, eaten away every year (fig. 16).

Near these flats are others, which I designate by the name of "Stensletter" ("stony plains", see A. Jessen in "Danmarks Geologiske Undersøgelse" I R., Nr. 3, p. 263).

These are plane or slightly undulating, almost horizontal, flats made up of sand, argillaceous sand, in spots, gravel with shells of sea mollusca, accordingly parts of a marine terrace.

They are strown with a great number of pebbles, partly angular, flat bits of sand stone, partly water-ground, flatly oval or ovally ball-shaped blocs of archaic rocks or basalt. Some of the blocks have worn, sand-polished corners and edges, and a few have the characteristic shapes of the "triangles".

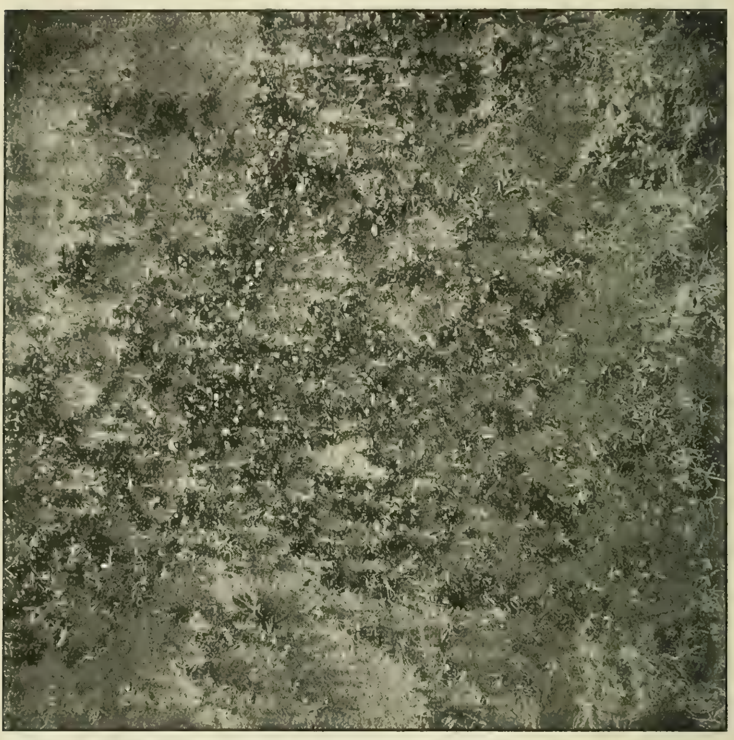

Fig. 16. *Arctostaphylos alpina* on sandy flat; only the new shoots protrude. Klitdalen. (From photo. by CHR. KRUUSE).

They most often have a thin coat of clay or ooze.

In the spring time some of the "Stensletter" are doubtless flooded for a shorter period and form extensive shallow ponds with from 10—50 cm water upon them. This period can but be of short duration; for did the flood last but a couple of months mud must be forming and rests be found of

a Limnae-bogvegetation; but of such I have not seen any vestige. That the „Stensletter" have had water over them is, however, plainly seen in the adjacent, somewhat higher tracts of sand-drift, which towards the "Stensletter" have 10—30 cm high bluffs with distinct marks of water-erosion. The water, being so shallow, can quickly evaporate or sink into the sand, when the supply ceases. The existence of outlets with distinct watermarks I could not establish.

The vegetation on the "Stensletter" is exceedingly scarce. I noted:

Dryas octopetala f. minor and *argentea, Potentilla nivea, Chamœnerium latifolium, Silene acaulis, Melandrium triflorum, Cerastium alpinum f. lanatum, Arenaria ciliata v. humifusa, Braya purpurascens, Lesquerella arctica, Arabis arenicola, Papaver radicatum, Armeria vulgaris v. sibirica, Polygonum viviparum f. alpina, Salix arctica v. groenlandica, Elyna Bellardi, Carex nardina, Trisetum subspicatum, Poa pratensis, Poa glauca v. arenaria* and *Festuca rubra.*

These are plants with a vigorous taproot and closely adpressed tuft-shaped growth or, with regard to the monocotyledons, tunicate growth. It is clear that the wind has only a limited time of display, for the hemicryptophytes (Raunkiær: Planterigets Livsformer og deres Betydning for Geografien) such as *Braya*, *Lesquerella* (fig. 17) and *Arabis arenicola* form round, hemispherical individuals showing no wind-wear whatever, although sometimes some covering with gravel. On the other hand, those which have wintering, epiterranean organs are highly injured on the north side. The monocotyledons, as a rule, manage best; they become, no doubt, rather crumpled, but they have an excellent defence in their old leaf-sheaths, which long resist the sand-wear. The dicotyledons, on the other hand, get very much injured on the north side; any stem, branch or root protruding is stripped of bark, dried up, weathered, bleached and killed. The northern side of a tuft is often an entangled

web of branches and roots lying several cm above the worn-off soil.

The plants stand, as a rule, singly, but the bigger ligneous plants, such a *Dryas* and *Salix* yet give shelter and lee to the smaller, which, for this same reason, accompany them; thus *Chamaenerium* and *Cerastium* are hardly ever seen except

Fig. 17. *Lesquerella arctica* on stony plain. The flowering shoots erect; those fructifying decumbent. Klitdalen. (From photo. by Chr. Kruuse).

sheltered by the willows. Yet it need not be but a small stone, arising only a few cm above the ground, which constitutes the condition of growth for an individual; indeed, I saw in one place *Arenaria ciliata* making shelter for *Potentilla nivea* (fig. 18).

In lee of each plant-tuft a small sand drift has gathered; It need not be more than 1—2 cm thick, but may very well be 15 cm in breadth and 40 cm long (the numbers corres-

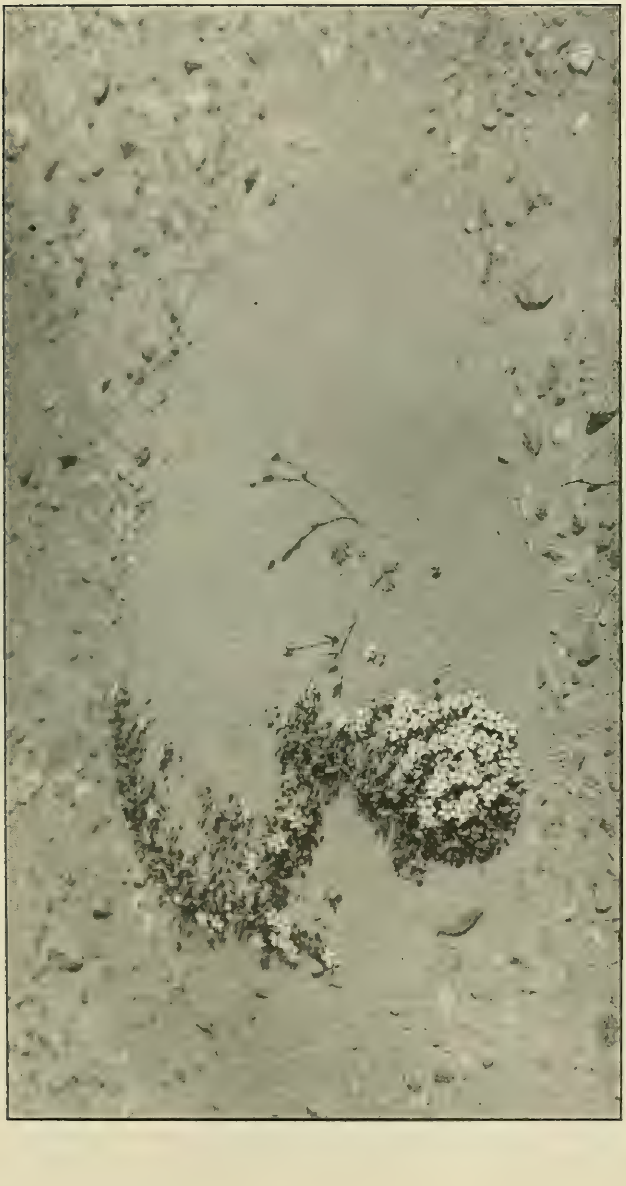

Fig. 18. *Arenaria ciliata*, in front of which a small dune with protruding *Potentilla nivea*. (From photo. by CHR. KRUUSE).

pond to a *Carex nardina* tuft); they may, however, measure 10—15 cm in height and upwards of 1 m in length; several are not from this year, as they have clearly been covered by water, are sometimes a little water-eroded and now and then intersected by drought cracks. The biggest sand drifts are formed by *Salix* and *Dryas.*

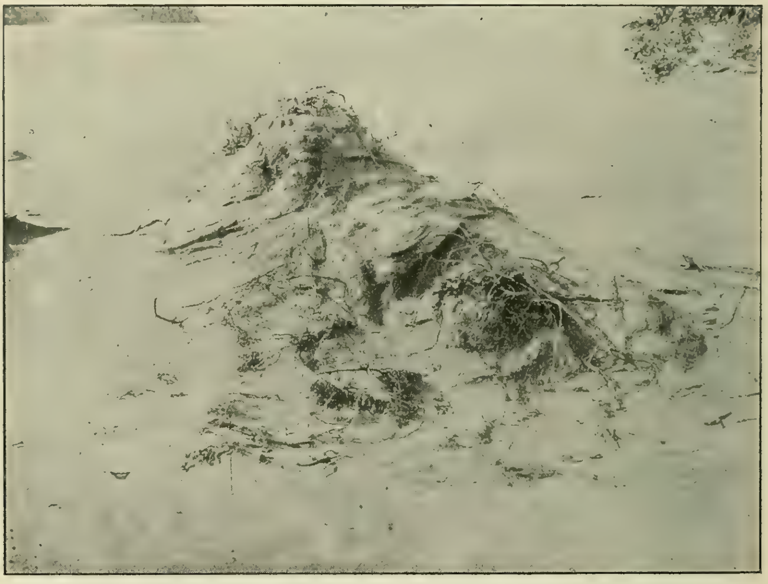

Fig. 19. Greatly demolished *Salix*-dune in front of a new sand-drift. Klitdalen. (From photo. by CHR. KRUUSE).

On the somewhat higher land environing the "Stensletter" are rather high (up to 1 m) dunes (fig. 19) around *Salix groenlandica* tufts in all stages of building up and demolition; the intervening ground is of the nature of "Stensletten", but the sand in the drifts is fine, stonefree drift sand. This is no question of any washing-out phenomenon, as there neither is any running water nor can be any considerable supply thereof.

At a still higher level are smaller flats of "living" dune sand

Here is neither stone nor solid rock in any known depth, no more is any clay found here. The surface is uneven from little undulations and hillocks, and the sand is so loose that the foot sinks into it. It is thinly, but evenly, covered by *Festuca rubra v. arenaria*, *Carex incurva*, *Chamaenerium latifolium* and *Salix glauca*. The three firstnamed plants commonly grow

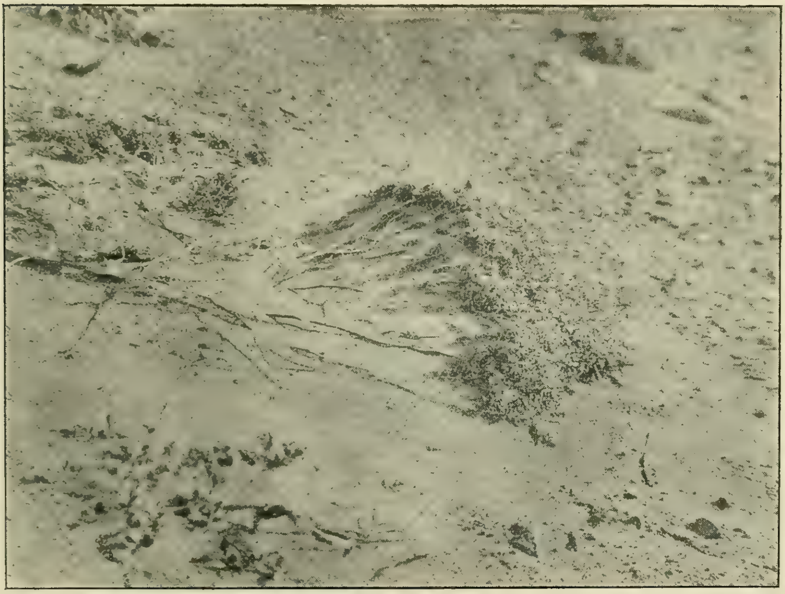

Fig. 20. Windworn *Dryas* on stony plain. Klitdalen. (From photo. by CHR. KRUUSE).

in rows of a length of up to 2 m after the direction of the rhizomes, which lie in a depth of from 5 to 10 cm. The covering with sand is great, *Chamaenerium* and *Salix* only rise 2—6 cm above the sand, hardly anything but leaves is seen, seldom flower and fruit, never parts of stems. *Carex incurva* is 5—7 cm high, has curved leaves and, here and there, sheaves. *Festuca* is 10—15 cm high and has many sheaves. The whole is decidedly a purely æolian formation.

In the angle between Ryder's River and its big tributary from the east („Bielven") the following notes were made (N. Hartz):

The stony plains ("Stensletter"). Here the sand has been blown and washed away, in such a way that the stones in the old sea-bottom form an almost complete cover on top of the under-

Fig. 21. *Dryas octopetala* with erect branches. Sand-drift grounds in Klitdalen. Del. H. OLRIK.

lying sand layers. The stones themselves are more or less rounded, often highly sand-polished and shining; scattered among the stones are numerous white subfossile shells (*Saxicava, Mya, Astarte*). The chief direction of the wind in this valley is evidently N—S; in the shelter of each separate larger stone or plant lies a small sanddrift.

Farther down along the banks of the rivulet the stony plains have an extremely poor vegetation, so poor that the plants tone them with hardly any hue, and it consists here almost

exclusively of Gramineae and Cyperaceae: *Glyceria maritima f. vilfoidea, G. distans, G. angustata, Carex incurva, Poa pratensis,* partly *f. vivipara* and some badly torn and worn tufts of *Carex nardina.*

At a somewhat longer distance from the stream grew upon the stony plains: Some tufts of *Salix groenlandica, Papaver, Draba nivalis, Armeria, Festuca rubra, Potentilla pulchella, Dryas, Braya purpurascens* and *Arabis arenicola.* The two lastmentioned species evidently thrive well on these localities, whereas most of the other species were greatly damaged by the wind; thus for instance the *Dryas*-bushes were always badly worn, with long, white, dead branches trailing flatly over the stones and the gravel.

Fig. 22. *Dryas octopetala*; part of foregoing.

Upon the large stony plains, a little farther towards the east (south of the tributary rivulet), which were furrowed by violent northern gales and intersected by spring-streamlets (now dried-up) were found, besides the above-mentioned plants some specimens of *Ranunculus glacialis, Luzula confusa, Melandrium apetalum* and *M. triflorum, Cerastium alpinum, Oxyria, Lesquerella* and *Potentilla nivea.*

Here and there a few coffin-shaped sandhills rose above the stony plain, 1—3 m long, $^1/_2$—1 m high, evidently remnants frome rosion, preserved by the aid of the roots from the *Salix arctica-* or *Chamaenerium*-tufts which grew upon their

tops and sides. *Stellaria longipes* once in a while grew among the *Salices* on these sandhills (Fig. 24).

Sand-drift grounds. In many places were small, low downs of white drift-sand. The "living" downs were often quite devoid of any vegetation. On flats with lively sand-drift

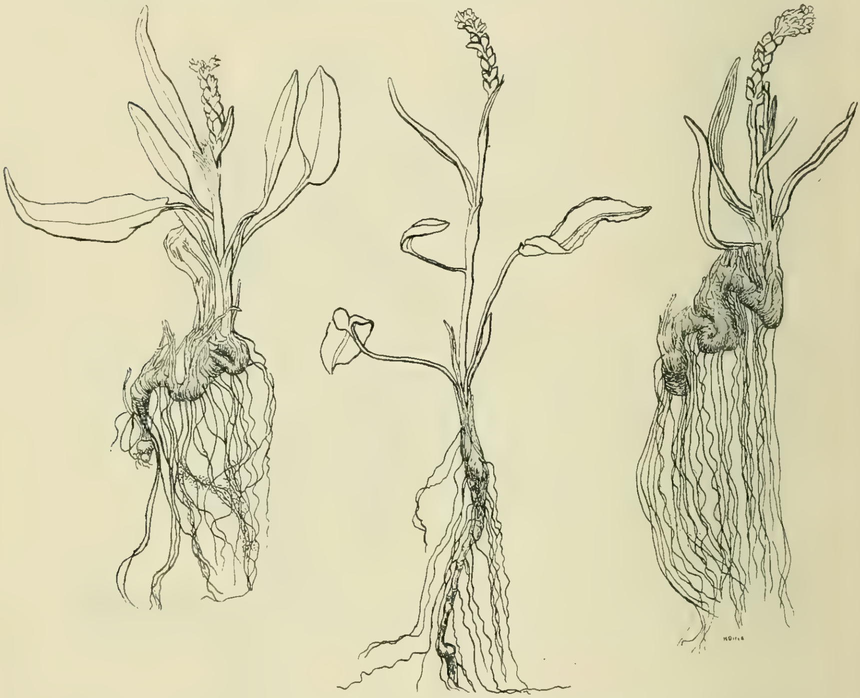

Fig. 23. *Polygonum viviparum*, sand-drift grounds. Klitdalen. Del. H. Olrik.

were noted: very luxuriant, decumbent bushes of *Salix arctica v.*, *Chamaenerium latifolium*, *Dryas* with erect branches and with only the ends of the branches above the sand (Fig. 21—22), *Polygonum viviparum*, the rhizomas of which were, in such localities, often lengthy and erect (Fig. 23), *Festuca rubra,* very vigorous, most often a form with hairy spikelets, *Arabis arenicola, Arenaria ciliata* (not common). Wherever the sand was a little more moist *Equisetum arvense* (the decumbent form) was

added to the former; in humid crevices light green patches of several m^2 extension could be seen, the colour of which was exclusively due to this plant.

When walking upwards in the direction of southeast from the stony plains and the sand-drift grounds to the gneiss-

Fig. 24. Coffin-shaped sand-hills, erosion-remnants covered with *Salix* and *Chamaenerium*. In the fore-ground *Festuca rubra*. Klitdalen. Del. E. Ditlevsen.

grounds one saw, as soon as the shelter of a knoll had been arrived at, *Dryas* and *Elyna* draw together and form a *Dryas*-heath, which at this time of the year (beginning of August) shone already in the motley colours of autumn: large wine-red blotches of *Arctostaphylos alpina*, dark green portions of *Cassiope tetragona*, yellowish-brown patches of *Empetrum, Vaccinium uliginosum* and *Betula nana*. In more humid heath

several other herbaceous plants were added to these: *Arnica, Pedicularis hirsuta, Stellaria longipes, Armeria, Luzula spicata, Pyrola grandiflora*; mosses and lichens make out a considerable part of the *Dryas*-heath.

On the south-side of a low gneiss-knoll was a rudimental herbaceous slope. The birch rose cautiously to $^1/_3$ m above the ground, *Taraxacum croceum* and *phymatocarpum, Alsine biflora, Draba repens* were flowering among decumbent, not yet flowering bushes of *Salix arctica v. groenlandica*, the leaves of which were not fully developed either — so lately the snow had melted away from this locality.

Point Constable (N. Hartz).

On Aug. 10th I went on a tramp across the considerable delta, which is crossfurrowed by numerous more or less considerable rivulets.

The lowest tracts were occupied by salt-marsh. The bottom here was clayey ooze, and had often a reddish tint. *Carex subspathacea* formed a dense but low "grass carpet" (4—5 cm high) with a straggling intermixture of *Stellaria humifusa* and *Glyceria vilfoidea.* Numerous irregularly shaped water-holes ("Lo'er") with steep margins 8—10 cm high, exactly as in the salt-marshes at home. Upon the bottoms of the holes, which were filled with water, lay red ochre films, below these black mud of at least 20 cm' thickness.

The surface of the salt-marsh was often slightly tufted; the small tufts were particularly vigorous specimens of *Carex subspathacea*, which would attain a height of up to 10 cm.

Inside the salt-marsh followed sand-drift grounds with a vegetation similar to the one described from Klitdalen; *Calamagrostis neglecta* and *Alopecurus alpinus*, which constituted but an unessential part of the vegetation in the sand-drift grounds of Klitdalen, were common here.

Western and southern coasts of Jameson Land (Chr. Kruuse).

On Aug. 15th Koch, Nordenskjöld and Kruuse left in the walrus boat in order to explore and map down the southern and western coasts of Jameson Land. As mentioned by Koch (Med. o. Grl. XXVII, p. 285) this coast is low and flat, formed by marine clay and sand without solid rock. The margin of the sea consists of fine sand, upon which is found washed up sea-weed mixed with sticks and leaves together with, rarely, a more considerable floating timber (see picture Koch l. c. p. 284); they form 1—3 strand lines. — A special strand vegetation is completely wanting. Inside the margin of the sea the land stands with rather steep bluffs, 2—6 metres high. Outside the margin of the sea is a broad flat (100—3000 metres), which is partially dry at low water and ends towards the inlet in a steep slope. There is 10—40 cm water upon it, the bottom is fine sand or, at places, mud; it is completely bare of vegetation.

Towards east and north-east the land rises evenly and slowly; it is nearly flat, but at rare intervals traversed by numerous brooks and streams, which have beds of 20—30 metres' depth in the loose bottom. By the coast they form river-cones; but a few of them, especially those abunding with water, ended in a little triangular lagoon, bordered towards the inlet by a convex coast-bank.

The country, by the way, corresponds well to the description which Hartz has given of its southern part (Med. o. Grl. XVIII, p. 124—132). I shall therefore only briefly mention the localities we visited, the more because bad weather and the difficulties in landing greatly limited the time we could give to the exploration.

By the landing place, on Aug. 16th close to the 71st parallel of latitude ran parallel to the coast an about 10 metres high

Fig. 25. Old "Rudemark" on Jameson Land. In the furrows *Cassiope tetragona* and *Dryas*. (From photo. by CHR. KRUUSE).

wall, inside which was found a broad, flat riverbed, after which the land rose evenly as far as the eyesight reached. The coast-wall consisted of marine, stoneless, somewhat sandy clay, the surface of which was cracked in checks about 40×100 cm in size, with 4—8 cm deep furrows between ("Rudemark"). The middles of the checks were devoid of vegetation, somewhat arched (see fig. 25), somewhat granular with nut-sized rounded clumps of clay, the margins cracked, and rather washed out. In the furrows stood: *Cassiope tetragona*, *Vaccinium uliginosum*, *Dryas octopetala f. minor*, *Salix arctica v. groenlandica*, *Pedicularis hirsuta*, *Silene acaulis, Polygonum viviparum,* and *Carex nardina.* All of them were low, somewhat lichenized and hardly reaching above the checks.

In the flat river-bed inside the wall water was only found in a pool, but after digging I found it everywhere in a depth of 10—30 cm below the even sand-bottom, which was only very thinly covered with *Equisetum arvense f. decumbens*, whose up to 15 cm long thin stems are half buried in the sand. The bank of the riverbed up to its uppermost edge is covered with *Eriophorum Scheuchzeri,* which at the bottom, although powerful and tickly tufted, is sterile, whereas the higher placed individuals have innumerable white fruit-tassels.

Within the low grounds, on the gently rising bottom, are found wide heather-moors made up of *Cassiope tetragona* and *Salix arctica v. groenlandica. Cassiope* is dominant, is tickly tufted, and 8—10 cm high. *Salix* is more scattered, is adpressed to the ground, 4—5 cm high, and somewhat surrounded by lichens. Besides were noted in small numbers: *Saxifraga decipiens, S. hieracifolia, Polygonum viviparum, Oxyria digyna* and *Luzula confusa.*

On the heath were found a few feebly depressed hollows with moist bottoms covered with *Amblystegia* and *Cardamine pratensis, Eriophorum Scheuchzeri,* and *Equisetum arvense f.*

decumbens; but otherwise the heath stretched unaltered for several square miles.

Our next tent-place by "Vandreblokken" was not reached till after a long row in rainy weather and night-quarters in the boat, as we could not land on account of low water. The bluff towards the sea was here 2—5 m high, it consists of marine clay with numerous shells of *Mya, Astarte, Saxicava* and other arctic mussels. It is greatly intersected by clefts, formed by streamlets which, during our visit, were nearly all dried up; but their bottoms were however moist, and the ground water was found in from 5 to 10 centimetres' depth. They are covered with scattered mosses, amongst which were noted: *Pohlia cruda, Tortula ruralis, Amblystegia, Anthelia julacea, Philonotis fontana,* and *Sphagnum teres.* Of vascular plants were found *Silene acaulis, Saxifraga cernua, Oxyria digyna, Carex lagopina, Trisetum subspicatum, Poa alpina f. vivipara,* and, in great numbers, *Equisetum arvense v. boreale,* which, although decumbent, is very powerful and thick-stemmed. Up the loamy soaked slopes stood besides the above-mentioned: *Phippsia algida, Poa* sp. and *Festuca rubra.*

In the small rainclefts the vegetation was a little less scattered and richer in dicotyledons. Here stood: *Sagina nivalis, Ranunculus pygmæus, Cerastium alpinum, Saxifraga cernua, Erigeron uniflorus, Oxyria digyna, Salix arctica v. groenlandica, Poa alpina f. vivipara, Poa pratensis, Glyceria angustata, G. vilfoidea,* and *Equisetum arvense.*

The surface of the land between the clefts is more sandy owing to washing out, and here are found *Cassiope* and *Vaccinium* half covered by sand, so that only branchends from 3 to 6 cm long stick out; there are great intervals between the tufts, wherever the sand is completely bare. Farther up the country the sand-drift stops, and the heath is dense, luxuriant and 10 cm high.

The sand beach is totally devoid of vegetation as well as

the shallow water without, but washed ashore upon the sand was one specimen of a narrow-leaved *Zostera marina*; notwithstanding an eager search I didn't succeed in finding any more, nor did I find the plant growing anywhere. Although the "Antarctic" passed the spot twice and we ourselves in the boat once, it is little likely that it comes from here, the more because it was not single leaves which might have been used in packing, but a specimen with parts of stems. I therefore think it probable that the plant grows somewhere in Scoresby Sund in small numbers.

Again we had, in order to come ashore close west of Cape Hooker, to pass half the night in the boat away on the shallow, which is a very disagreeable thing to do in rainy weather, and not until about 3 o'clock did we get ashore and got our tent pitched against the rain. The ground around this tent place was considerably more barren than that surrounding "Vandreblokken", and it corresponds peculiarly well to the description which Hartz has given (Med. o. Grl. XVIII, p. 126—132).

Here was found mossfield on clay, principally *Anthelia*-covering with *Peltigera aptosa*, *Silene acaulis, Cassiope hypnoides, Oxyria digyna, Salix herbacea, Salix arctica, Luzula confusa, Carex lagopina, Trisetum subspicatum*, *Poa alpina f. vivipara*, *Festuca ovina* and in single patches *Festuca rubra*. All were low and stunted. Alternating with these was *Cassiope*-heath of 5 cm height, stony plains without any vegetation, and sandflats with lichen covering or a thin growth of *Polytrichum juniperinum, Luzula confusa, Trisetum, Oxyria, Salix arctica v. groenlandica, Cerastium alpinum*, and *Equisetum arvense*; all dwarfed.

Wherever the heath, which besides *Cassiope* consisted of *Empetrum, Arctostaphylos alpina, Vaccinium,* and *Salix arctica v. groenlandica*, was adjacent to the stony and sandy plains it was dissolved into separate tufts with bare sand between, and beyond

its margin were seen remnants of the bushes. Thus I saw in one place a *Salix* which, though yet alive, had its root naked in a length of 156 cm.

It was absolutely evident that the wind broke up the surface and destroyed the heath so that this tract of land in the course of a few years will acquire a similar appearance to that of the above-mentioned stony plains in Klitdalen. The prevalent wind here, as there, was northern, and the destruction especially advanced in the direction from west to east.

Farther up the country the heath became much more luxuriant, up to from 10 to 15 cm high, and consisted, besides the above-mentioned, of *Luzula confusa, L. spicata*, *Poa pratensis*, *P. alpina, Silene acaulis, Saxifraga oppositifolia, Pedicularis hirsuta, Erigeron uniflorus,* and *Betula nana.* The sides of the river-valleys, which were here strewn with blocks of ammonite-sandstone, were abundantly covered by *Vaccinium* and *Betula*, and the bottom of the valley with a covering of *Equisetum arvense,* amongst which were scattered *Oxyria, Cerastium trigynum,* and *Koenigia.*

List of all the vascular plants hitherto known from Scoresby Sund[1]).

Dryas octopetala.
— —* *integrifolia.*
Potentilla pulchella.
— *maculata.*
— *emarginata.*
— *nivea.*
Silbaldia procumbens.
Alchimilla glomerulans
Hippuris vulgaris.
Callitriche verna v. minima.
Epilobium anagallidifolium.
Chamænerium latifolium.
Empetrum nigrum.
Silene acaulis.
Viscaria alpina
Melandrium apetalum.
— *involucratum v.*
— *triflorum.*
Sagina Linnæi.
— *nivalis.*
Alsine biflora.
— *stricta.*

[1]) cpr. N. Hartz, Medd. om Grønland, XVIII. 1905.

Alsine verna.
Halianthus peploides v. diffusa.
Arenaria ciliata v. humifusa.
Stellaria longipes.
— *humifusa.*
Cerastium trigynum.
— *alpinum.*
Lesquerella arctica.
Cochlearia officinalis v.
Draba alpina.
— *crassifolia.*
— *aurea.*
— *repens.*
— *nivalis.*
— *Fladnizensis.*
— *hirta.*
— *arctica.*
Braya purpurascens.
— *alpina.*
Cardamine bellidifolia.
— *pratensis.*
Arabis alpina.
— *Holboellii.*
— *arenicola.*
Papaver radicatum.
Thalictrum alpinum.
Batrachium paucistamineum v. eradicata.
Ranunculus glacialis.
— *pygmæus.*
— *hyperboreus.*
— *nivalis.*
Ranunculus altaicus.
— *arcticus.*

Saxifraga hieracifolia.
— *nivalis.*
— *stellaris v. comosa.*
— *cernua.*
— *rivularis.*
— *decipiens.*
— *tricuspidata.*
— *aizoides.*
— *Aizoon f. brevifolia.*
— *oppositifolia.*
Sedum Rhodiola.
Armeria vulgaris v. sibirica.
Pinguicula vulgaris.
Veronica alpina.
— *saxatilis.*
Pedicularis lapponica.
— *flammea.*
— *hirsuta.*
Euphrasia latifolia.
Gentiana tenella.
Diapensia lapponica.
Pyrola rotundifolia v. grandiflora.
Arctostaphylos alpina.
Phyllodoce coerulea.
Cassiope tetragona.
— *hypnoides.*
Rhododendron lapponicum.
Vaccinium uliginosum.
Campanula uniflora.
— *rotundifolia.*
Taraxacum phymatocarpum.
— *croceum.*
Hieracium alpinum.

Antennaria alpina.
Erigeron compositus.
— *uniflorus.*
Arnica alpina.
Koenigia islandica.
Polygonum viviparum.
Oxyria digyna.
Rumex acetosella.
Salix herbacea.
— *arctica.*
— *glauca.*
Betula nana.
Tofieldia palustris.
— *coccinea.*
Juncus biglumis.
— *triglumis.*
— *castaneus.*
— *trifidus.*
— *arcticus.*
Luzula multiflora.
— *arcuata v. confusa.*
— *spicata.*
— *nivalis.*
Eriophorum Scheuchzeri.
— *polystachium.*
Elyna Bellardi.
Kobresia bipartita.
Carex nardina.
— *dioica v. parellela.*
— *ursina.*
— *scirpoidea.*
— *microglochin.*
— *rupestris.*
— *incurva.*
Carex Maclowiana.
— *lagopina.*
— *alpina.*
— *misandra.*
— *glareosa.*
— *bicolor.*
— *salina f. subspathacea.*
— *rigida.*
— *capillaris.*
— *rariflora.*
— *pedata.*
— *supina.*
— *rotundata.*
— *pulla.*
Alopecurus alpinus.
Hierochloa alpina.
Agrostis borealis.
Calamagrostis arundinacea.
— *neglecta.*
Trisetum subspicatum.
Pleuropogon Sabinei.
Phippsia algida.
Arctagrostis latifolia.
Glyceria distans.
— *maritima v. vilfoidea.*
— *angustata.*
— *Vahliana.*
Poa abbreviata.
— *glauca.*
— *nemoralis var.*
— *alpina.*
— *pratensis.*
— *cenisia.*
Festuca ovina.

Festuca rubra v. arenaria.
Lycopodium alpinum.
— *Selago v. appressa.*
— *annotinum v. pungens.*
Aspidium fragrans.
Cystopteris fragilis.
Woodsia ilvensis.
— *hyperborea.*
— *glabella.*
Botrychium Lunaria.
Equisetum arvense.
— *variegatum.*

On August 22nd we left Scoresby Sund; after a short visit to Cape Greg on the east coast of Liverpool Land on Aug. 23rd, and to Cape Brown in the mouth of Fleming Inlet on August 24th, we made a longer visit to Fleming Inlet, Aug. 25th—26th.

Cape Brown (Chr. Kruuse).

On August 24th we landed at Cape Brown, where the foot of the mountain consisted mostly of barren débris. Yet a little stream had cut itself a narrow and deep cleft in the rock, and through it I went up the mountain. The rocks are highly ice-ground and almost without any loose soils and, accordingly, nearly devoid of continuous higher vegetation. Here and there, however, in the cleft of the stream a little sand had formed, and thanks to the avantages of shelter and with abundant humidity the plants were thriving surprisingly well. I noted during an ascent of about 300 m:

Dryas octopetala f. minor, Chamænerium latifolium, Silene acaulis, Arenaria ciliata, Alsine biflora (partly flor. lilacinis), *A. verna v. propinqua, Melandrium involucratum v. affine, Cerastium alpinum f. lanatum, Draba alpina, D. nivalis, D. Fladnizensis, D. arctica, Papaver radicatum, Saxifraga decipiens, S. cernua, S. oppositifolia, Pedicularis flammea, Cassiope tetragona, Vaccinium uliginosum, Rhododendron lapponicum, Campanula rotundifolia, Oxyria digyna, Salix arctica, Luzula confusa, Carex nardina, Poa glauca, P. pratensis, P. cenisia, Festuca ovina, Cystopteris fragilis* and *Woodsia ilvensis.*

In moist crevices *Philonotis fontana* formed large light green cushions, and on the rocks sat here and there *Hypnum trichodes.*

Above the cleft was at little valley-bottom thinly dotted with small tufts of *Grimmia apocarpa,* and also, more rarely, *Cetraria nivalis* and *Stereocaulon denudatum.*

Fleming Inlet.

Cape Seaforth, Ørsted's Valley (N. Hartz).

On the 25th of August I made an excursion up trough the abt. 7 km broad Ørsted's Valley, which follows the direction SW-NE, traversed by a broad and watery stream with large delta formations at the outlet. On the previous evening a strong Föhnwind kept blowing out the valley carrying along with it large quantities of dust away over the inlet; viewed from some distance it looked quite like an advancing fogbank.

On this day it was clear sunshine with a feeble breeze from SW; in spite of the advanced time of the year a few gnats and *Argynnis* were, however, seen. The valley evidently is a favoured spot for large numbers of geese; numerous excrements of geese lay scattered everywhere in the bogs: these were often filled with the undigested remnants of axillary bulbs of *Polygonum viviparum.* Away in a moist moss-bog lay close by a small pool of water a big "goose tuft" abt. 10 m^2 and 1 m high (frozen in a depth of 25 cm) formed chiefly by vigorous *Aulacomnium palustre*; amongst the mosses grew luxuriant specimens of *Festuca rubra*, *Stellaria longipes* and *Marchantia polymorpha.* A great many excrements and feathers of geese upon the tuft.

At Cape Seaforth itself was found *Saxifraga oppositifolia* var. *Nathorsti,* a very peculiar and characteristic form, conspicuous at first sight on account of the pale-redviolet or fleshycoloured hue of its corolla. You think at first that

Fig. 27. The valley at Cape Seaforth. To the left *Dryas*-heath with steep declivity towards the sandy flat where little dunes form round *Festuca rubra*. (From photo. by Chr. Kruuse).

you have a bastard of *Saxifraga oppositifolia* and *S. aizoides* before you.

This variety has been described by P. Dusén[1]) upon the specimens found in 1899 by A. G. Nathorst and K. A. Gredin at 7 divers localities in the Frantz Joseph Fjord and Kong Oscar Fjord, and Dusén gives both good habit pictures of the form and analyses of leaves, corollas and sepals of the main species and of the variety. Dusén points out that the late flowering is striking in the variety, while the main species, as known, belongs to the earliest flowering spring plants of Greenland and altogether of the whole arctic Zone.

We found numerous specimens growing amongst *Saxifraga oppositifolia* and *S. aizoides* on a low sanded moist bottom near the beach, but did not see any ripe fruits on the plant. Specimens, brought alive to Copenhagen have later flowered every year in the Botanical Gardens of the University and have kept constant, although somewhat luxuriating.

The valley was covered by considerable alluvial layers, mostly sand, and cross-furrowed by abandoned, dry river-beds. Most likely the valley-bottom is a "postglacial" river-deposit in the former inlet, the mouth of which has been partly closed by a reef formed by a basalt-stock; remnants of this still showed projecting rocks at and close outside the beach. The river carries enormous quantities of sand along with it, and excepting only the foot of the mountain the valley-bottom was made up everywhere of fine sand without stones. Nearest the mountain-foot were stones and stony clay, moraine or weathering product. The river had such an abundance of water and the current was so strong that it could not be waded.

Farther up the valley was an excellent opportunity of studying the marked influence of the height of the underground water, which asserted itself at rather inconsiderable differences

[1]) Zur Kentnis d. Gefässpfl. Ostgrönland. Bik. t. k. sv. Vet. Akad. Handl., Bd. 27. Afd. III. Nr. 3, 1901.

of elevation of the ground, and which is illustrated by the diagrammatic section of part of the valley.

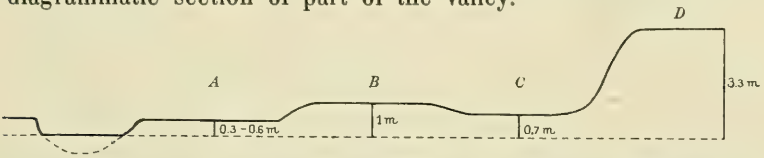

Fig. 26. Diagrammatic section of Ørsted's Valley. Cape Seaforth. Fleming Inlet.

A: 0,3—0,6 m above the river. Decumbent *Salix arctica* (and *Silene acaulis*).

B: 1 m above the river. *Dryas octopetala* (and *Polygonum viviparum*).

C: 0,3 m lower than B (Dry abandoned river-bed). *Calamagrostis neglecta*-meadow with *Carex pulla, Eriophora, Equisetum arvense, Cardamine pratensis, Juncus arcticus.*

D: 2,6 m higher than C. Heath, formed by *Cassiope tetragona* with *Dryas octopetala.*

ad C. Besides the meadow was found here a tract of loose, almost bare sand with wave-lines perpendicular to the main direction of the valley, made by the wind. Here were seen single tufts of *Festuca rubra, Eriophorum Scheuchzeri, Carex incurva* and *Juncus arcticus,* which had each collected a small abt. 5—10 cm high drift of fine sand between the straws and sheltered on the eastside.

Here and there were small downs covered with *Carex incurva* and *Juncus arcticus*; on the north-side of the valley were seen considerably bigger downs, which were not reached. When later in the day a strong breeze set in from the sea large dustclouds were seen on the northside of the valley.

The divers vegetations gave different hues to the different localities, the localities covered by decumbent *Salix arctica* displaying a deep green shade (A), the *Dryas*-heath a reddish brown (B) and the *Cassiope*-heath a dark brown (D).

In the *Calamagrostis*-meadow was found *Cardamine pratensis* in flower.

Ørsted's Valley (Chr. Kruuse).

Close inside the beach was a low flat, which had evidently been covered by water at an earlier time of the year. It was covered with a dense carpet of mosses, liverworts and algae, amongst which *Chomocarpon commutatus, Sauteria alpina* and, chiefly, *Marchantia polymorpha v. alpestris* were prevalent. In the mosscover stood with abt. 30 cm' interval a great many 1—5 cm tall, hemispherical tufts of phanerogams, which were made to stand out greatly by the dark, one-coloured bottom. Here were noted:

Dryas octopetala f. minor, Silena acaulis, Sagina Linaei, Alsina biflora, A. verna v. rubella, Arenaria ciliata, Stellaria humifusa, Cerastium alpinum, Cochlearia officinales v. groenlandica f. minor, Draba alpina, D. Fladnizensis, Braya purpurascens, Cardamine bellidifolia, Saxifraga oppositifolia f. pulvinata, S. oppositifolia v. Nathorsti, S. aizoides, S. cernua, Ranunculus altaicus, R. nivalis, R. pygmæus, Pedicularis hirsuta, Koenigia islandica, Polygonum viviparum f. alpinum, Oxyria digyna, Salix arctica, Luzula confusa, Juncus biglumis, Poa alpina, Glyceria vilfoidea, Carex incurva, C. salina v. subspathacea, Equisetum arvense and *variegatum f. anceps.*

Pingel's Valley (N. Hartz).

Aug. 26th. In Pingel's valley, which stretches from the south-eastern corner of Fleming Inlet in about easterly direction I found a somewhat more luxuriant vegetation than in Ørsted's valley, more vigorous heath (*Cassiope tetragona*) and herby slopes, with fresh green grasses and herbs, and a thick, black mould-layer, probably abt. 6—7 km from the beach. Here were found in several small moist clefts traversed by brooks the following plants: *Botrychium lunaria, Veronica alpina, Sibbaldia procumbens, Thalictrum alpinum, Euphrasia latifolia.*

The four first-mentioned: *Botrychium, Veronica, Sibbaldia*

and *Thalictrum* have here their northernmost known habitats on the east-coast.

The valley in the south-western corner of Fleming Inlet (Chr. Kruuse).

On Aug. 26th Deichmann and I landed in the broad valley which shoots inland from the head of the inlet towards north-west. Through the valley flows a goodly stream, which has cut out in the bottom of the valley a cleft of up to 7 metres' depth, and which at the spot where it enters the inlet forms an enormous river-cone of débris crossed by delta arms and strewn with rocks and waterground stones. These are found arranged in walls, 50—200 cm high, which radiate fanshape from the mouth of the river; between the walls are hollows with no vegetation, but often strewn with sticks and fragments of plants. The whole of the cone of débris is evidently relaid every spring, and only the heaviest blocks are allowed to remain undisturbed. Upon the walls *Chamænerium latifolium* formed a magnificent red 25 cm high cover, in which were noted: *Sagina nivalis*, *Cerastium alpinum, Arabis alpina, Koenigia islandica, Oxyria digyna*, *Poa alpina, Festuca rubra* and *Phippsia algida.*

The bottom of the valley lies about 30 metres above the level of the sea, and up to it leads a rather steep south-exposed slope covered with herbaceous plants, which formed a luxuriant, 5—15 cm high, fresh green cover. Here were noted: *Potentilla maculata, P. nivea*, *Sibbaldia procumbens, Silene acaulis, Sagina nivalis, Alsine biflora*, *Cerastium alpinum, C. trigynum, Draba hirta, D. alpina, Arabis alpina, Thalictrum alpinum, Saxifraga cernua, S. nivalis*, *S. hieracifolia*, *S. decipiens*, *S. rivularis, S. oppositifolia f. reptans, Veronica alpina*, *Antennaria alpina f. glabrata*, *Erigeron uniflorus, Taraxacum croceum*, *T. phymatocarpum, Polygonum viviparum, Oxyria digyna, Salix herbacea, Salix groenlandica, Trisetum subspicatum, Festuca rubra*, *Poa alpina*, *Poa cenisia*,

Luzula confusa, Carex scirpoidea, C. rigida, C. incurva, Juncus biglumis, Eriophorum Scheuchzeri, Ranunculus nivalis, R. altaicus, R. pygmæus f. Langeana, Campanula rotundifolia and *Woodsia glabella.*

The top of the slope was covered by a high, luxuriant heather-moor made up of: *Dryas octopetala, Cassiope tetragona, Vaccinium uliginosum, Arctostaphylos alpina* and *Betula nana*, all with ripe fruit. Amongst them grew in lesser numbers: *Empetrum nigrum, Alsine biflora, Cerastium alpinum, Papaver radicatum, Saxifraga oppositifolia, Pedicularis hirsuta, Pyrola grandiflora, Arnica alpina, Luzula confusa, Carex nardina* and *Poa alpina.*

At spots where earlier in the summer had been springs were found covers of *Philonotis fontana* and small spots of *Leersia affinis, Chomocarpon commutatus, Cephalozia bicuspidata v. cavifolia, Blepharostoma trichophylla, Jungermannia quinquedentata, J. elongata* and its *f. alpestris.*

The bottom of the valley was very poor rocky-flat formation thinly covered with mosses (*Pohlia spp., Anthelia, Grimmiae*) and lichens, and with very few phanerogams, among which *Silene acaulis, Salix arctica, Luzula confusa,* and *Carex rigida* were the most prominent. It was striped by wild brooks and strewn with flat stones, among which numerous lemmings had their burrows. The hound Jeanette indicated with certainty which holes were inhabited, and digging out 30 burrows we managed to capture 13 living animals.

Forsblads Fjord.

Polhem's Valley (N. Hartz). On the 28th of Aug. we went ashore for some few hours' stay at Polhem's Valley on the north side of the river. Here was found vigorous, now much desiccated heath of a dark-brown shade made up as usually by *Cassiope tetragona.*

On a dry southern slope, built up of hard quartzitic schists without any mould was found the xerophile coppice vegetation formerly described by me from the inmost ramifications of Scoresby Sund. All the vegetation was utterly dried up; large fine carpets of *Betula nana, Salix arctica* var. *groenlandica, Vaccinium uliginosum, Rhododendron lapponicum, Arctostaphylos alpina* and *Empetrum nigrum.* The birch-trunks were up to 1,5 cm thick, 50—100 cm long and rose up to 25 cm above the ground. Besides the common big, tuftshaped gramineæ in gigantic specimens were found: *Calamagrostis arundinacea, Festuca rubra* var. *arenaria, Poa alpina* and a great many other herbaceous plants e. g. *Campanula rotundifolia* richly flowering, *Tofieldia coccinea* (which was found already at Forsblads Fjord by Nathorst) partly with white flowers, *Lesquerella arctica, Rumex acetosella, Melandrium affine, M. triflorum, Silene acaulis, Draba alpina, Saxifraga nivalis, S. hieracifolia, Pedicularis lapponica, P. flammea, P. hirsuta, Arnica alpina, Elyna Bellardi, Carex nardina, Hierochloa alpina, Trisetum subspicatum, Poa glauca* and *Cystopteris fragilis*, fully corresponding to Duséns' description of the copses (Gebüsch or Gestrüpp) of Kjerulfs Fjord.

Here were exquisitely fine, marine, clayey and sandy terraces; on the clayey flats were often seen large spots devoid of vegetation. I wonder whether presence of sodic chloride here hinders the forthcoming of vegetation (cf. my observations on the south-coasts of Jameson Land (Medd. om Grønland, XVIII, p. 130). On a gravelly marine terrace-flat abt. 50 m above the level of the sea grew *Dryas octopetala *integrifolia*, a rare plant in these regions of Greenland.

Outside the valley was a small narrow lagune with a low clayey-sandy wall on which grew *Halianthus* and *Stellaria humifusa.* On the beach numerous specimens of *Fucus* were thrown ashore.

Further up the inlet we landed for a few hours' stay

on Aug. 29th; here was a low *Betula nana* coppice (or perhaps rather *Betula nana* heath) with numerous powerful specimens of *Elyna Bellardi* and other tall, graminaceous plants: *Calamagrostis arundinacea, Poa glauca, Carex nardina, Aira caespitosa f. alpina, Trisetum subspicatum, Festuca rubra* and fruitbearing *Vaccinium uliginosum*, a rather luxuriant, but very uniform vegetation.

At Kingua in Forsblads Fjord we stayed from the evening of August 29th to the next day at noon; we had our tent-place for the night at the very head of the inlet. The temperature of the air at nine o'clock in the evening was still 9° C. The vegetation here was powerful and well developed, but very little peculiar, namely *Cassiope*-heath and *Carex*-bog.

Here were found *Pedicularis lapponica* and *Tofieldia palustris.* Considerable ice-free land was found between the inland-ice and Kingua of the inlet.

Canning Land (Chr. Kruuse).

On Sept. 1st we landed on Canning Land in the vicinity of Cape Fletcher. The mountains are steep and, in long tracts of land, descend vertically into the ocean without any mountain foot, but outside a pass were found huge cones of débris. Weathering and frost-bursting are quick, and the light eruptive rocks which formed the pass and the mountains to the east of this were greatly corroded. The bottom is not very stabile, and is at present lacking moisture. The sea margin is made up of rolled blocks the size of a human head; there was no strand-vegetation except in the shelter of a couple of mighty blocks, where *Halianthus peploides* and *Stellaria humifusa* had found needful space.

On the débris-heaps were found only here and there spots of 1—2 m^2 with continuous vegetation, or a single individual sticking out between the blocks. I collected the species enume-

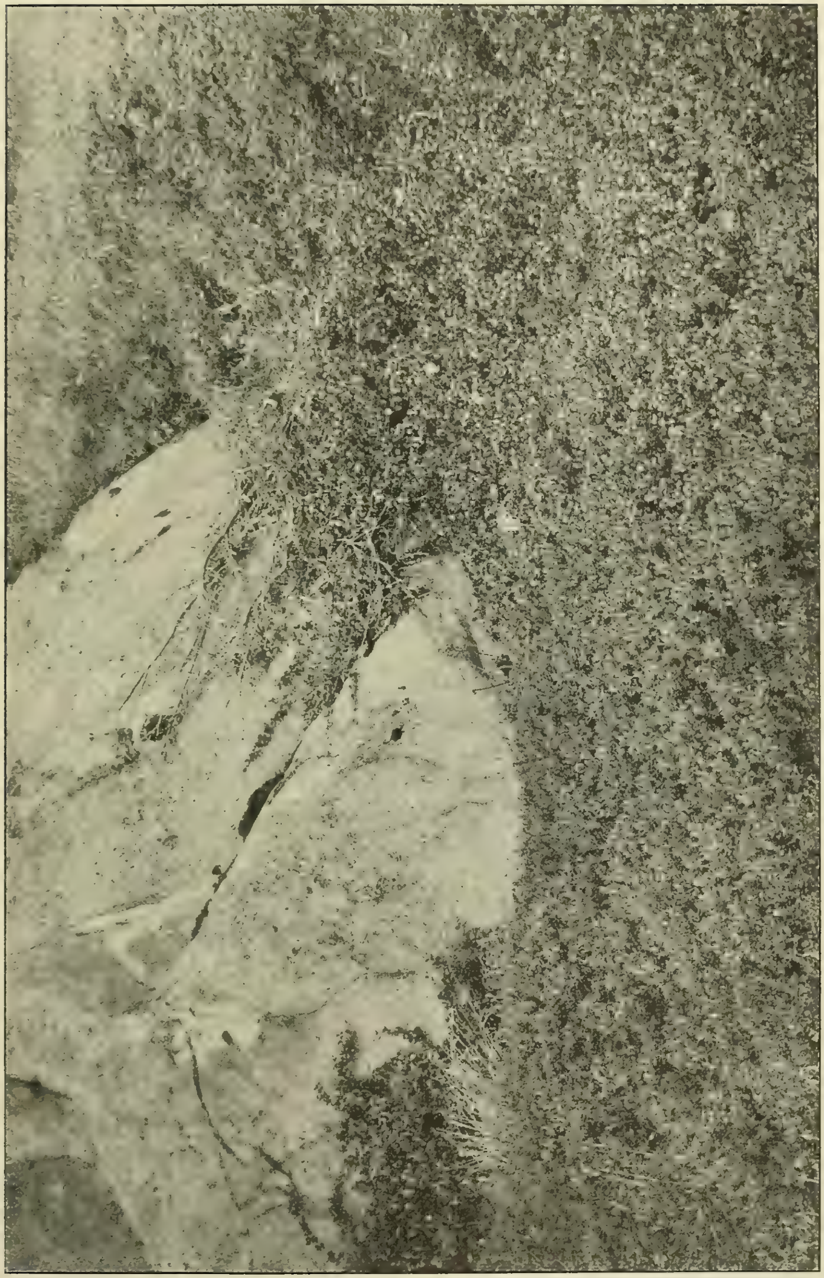

Fig. 28. *Betula nana*-espalier in *Vaccinium*-heath with *Calamagrostis arundinacea*. Forsblads Fjord. (From photo. by Chr. Kruuse).

rated below; I saw altogether only 1—3 individuals of each species with the exception of *Vaccinium* and *Salix*, of which I noticed about 20.

Dryas octopetala f. minor, Alsine biflora, Cerastium alpinum v. lanatum, Draba hirta, Saxifraga decipiens, S. cernua, S. oppositifolia, Vaccinium uliginosum f. microphyllum, Oxyria digyna, Salix arctica v. groenlandica, Luzula confusa and *Festuca ovina.*

In the pass and up the sides of the mountains up to about 700 metres above the level of the sea were noted:

Dryas octopetala f. hirsuta, Arenaria ciliata v. humifusa, Cerastium alpinum f. lanatum, Papaver radicatum, Saxifraga aizoides, S. oppositifolia, Salix arctica v. groenlandica, Carex nardina and *Poa glauca.*

The walls of the pass were, owing to quick weather-crumbling, totally bare of plants, not even a lichen could be found upon them. The north side of the mountain seen from above was also bare. I went down it 200 metres without finding other than the following mosses: *Timmia austriaca, Plagiobryum Zierrii, Onchophorus polycarpon, Grimmia apocarpa,* and *Jungermania Baueriana.*

The valley below, as seen from the heights, was completely bare of vegetation upon the coarse gravel. Indeed, this place was one of the most desolate and most devoid of vegetation ever seen by me in Greenland. On the other hand the landscape was exceedingly beautiful as from the far projecting Canning Land one had a wide view of large tracts of the coasts with lowlands and picturesque mountain-sceneries.

Angmagsalik.

The observations and collections made during our stay in the days from the 11th—17th Septbr. will be mentioned by Kruuse in connection with his studies conducted in 1898—99 and in 1902.

List of Plants known from the northern Fjords.

Dryas octopetala.
— — **integrifolia.*
Potentilla maculata.
— *emarginata.*
— *nivea.*
Sibbaldia procumbens.
Chamœnerium latifolium.
Empetrum nigrum.
Silene acaulis.
Melandrium apetalum.
— *involucratum v. affine.*
— *triflorum.*
Sagina Linnæi.
Alsine biflora.
— *verna.*
Halianthus peploides v. diffusa.
Arenaria ciliata v. humifusa.
Stellaria humifusa.
— *longipes.*
Cerastium trigynum.
— *alpinum.*
Lesquerella arctica.
Cochlearia officinalis f. minor.
Draba alpina.
— *nivalis.*
— *Fladnizensis.*
— *hirta.*
— *arctica.*
Braya purpurascens.
— *alpina.*
Arabis alpina.
Cardamine bellidifolia.
— *pratensis.*
Papaver radicatum.
Thalictrum alpinum.
Ranunculus glacialis.
— *pygmæus.*
— *hyperboreus.*
— *nivalis.*
— *altaicus.*
— *arcticus.*
Saxifraga hieracifolia.
— *nivalis.*
— *stellaris v. comosa.*
— *cernua.*
— *rivularis.*
— *decipiens.*
— *aizoides.*
— *oppositifolia.*
Sedum Rhodiola.
Armeria vulgaris v. sibirica.
Veronica alpina.
Pedicularis lapponica.
— *flammea.*
— *hirsuta.*
Euphrasia latifolia.
Pyrola rotundifolia var. grandiflora.
Arctostaphylos alpina.
Cassiope tetragona.
Rhododendron lapponicum.

Vaccinium uliginosum.
Campanula uniflora.
— *rotundifolia.*
Taraxacum phymatocarpum.
— *croceum.*
Antennaria alpina.
Erigeron uniflorus.
Arnica alpina.
Matricaria inodora v. phæocephala.
Koenigia islandica.
Polygonum viviparum.
Oxyria digyna.
Rumex acetosella.
Salix herbacea.
— *arctica.*
Betula nana.
Tofieldia palustris.
— *coccinea.*
Juncus biglumis.
— *triglumis.*
— *castaneus.*
— *arcticus.*
Luzula arcuata v. confusa.
— *spicata.*
Eriophorum Scheuchzeri.
— *polystachium.*
Elyna Bellardi.
Kobresia bipartita.
Carex nardina.
— *ursina.*
— *scirpoidea.*
— *rupestris.*
— *incurva.*
Carex lagopina.
— *misandra.*
— *salina v. subspathacea.*
— *rigida.*
— *capillaris.*
— *supina.*
— *pulla.*
Alopecurus alpinus.
Hierochloa alpina.
Calamagrostis arundinacea.
— *neglecta.*
Trisetum subspicatum.
Pleuropogon Sabinei.
Phippsia algida.
Arctagrostis latifolia.
Glyceria distans.
— *maritima v. vilfoidea.*
— *angustata.*
Poa abbreviata.
— *glauca.*
— *alpina.*
— *pratensis.*
— *cenisia.*
Festuca ovina.
— *rubra.*
Lycopodium Selago v. appressa.
Cystopteris fragilis.
Woodsia ilvensis.
— *hyperborea.*
— *glabella.*
Botrychium Lunaria.
Equisetum arvense.
— *variegatum.*

Flower-pollination (N. Hartz).

While referring to my observations from 1891—92 over this question (Medd. om Grønland, XVIII, p. 300) I cite below the isolated observations from 1900:

Sabine Island. 12.—14. VII.

Papaver radicatum — *Ramphomyia* (*nigrita?*).
Silene acaulis ♀ — *Agrotis* sp. (hawk-moth).
Potentilla nivea — flies.
Polemonium humile — flies.
Stellaria humifusa — flies.

Cape Dalton. 20. VII.

Rhodiola rosea ♂ — fly.
Dryas octopetala — numerous flies.
Cassiope tetragona — numerous humble bees.

Hurry Inlet.

Chamænerium latifolium — humble bees, 31. VII and 4. VIII.
Cerastium alpinum — flies, 11. VIII.
Silene acaulis ♀ — *Colias*, 15. VIII.

Polhems Valley. 28. VIII.

Saxifraga aizoides — two humble bees (H. Deichmann).

Distribution of the species and some varieties in East Greenland (Chr. Kruuse).

	Northern coast part 75°—73°30′	Northern inlet part 73°30′—71°20′	Scoresby Sund 71°30′—70°	Cape Dalton part 70°—69°25′
Dryas octopetala		......	......	......
— — *f. minor*	......	......	......	......
— — *f. hirsuta*	......		......	
— — *f. argentea*	......		......	
— — **integrifolia*		......	......	
— — *f. intermedia*			......	
Potentilla pulchella f. humilis	......		......	......
— — *f. elatior*			......	
— *maculata*	......	......	......	......
— *emarginata*	......	......	......	......
— *nivea*	......	......	......	......
Sibbaldia procumbens		......	......	......
Alchimilla glomerulans			......	
Hippuris vulgaris			......	
— — *v. maritima*			......	
Callitriche verna v. minima			......	
Epilobium anagallidifolium			......	
Chamænerium latifolium	......	......	......	......
Empetrum nigrum	......	......	......	......
Silene acaulis	......	......	......	......
Viscaria alpina			......	
Melandrium apetalum	......	......	......	......
— *involucratum v. affine*	......	......	......	......
— *triflorum*	......	......	......	
Sagina Linnaei		......	......	
— *nivalis*	......		......	......
— *cæspitosa*	......		......	
Alsine biflora	......	......	......	......
— *stricta*			......	
— *verna v. rubella*	......	......	......	......
— — *hirta*	......		......	......
— — *propinqua*		......	......	......
Halianthus peploides v. diffusa	......	......	......	
Arenaria ciliata v. humifusa	......	......	......	......
Stellaria humifusa	......	......	......	......

	Northern coast part 75°—73°30′	Northern inlet part 73°30′—71°20′	Scoresby Sund 71°30′—70°	Cape Dalton part 70°—69°25′
Stellaria longipes	......	......	......	......
Cerastium [1]) *trigynum*		......	......	......
— *alpinum*	......	......	......	......
Lesquerella arctica	......	......	......	
Cochlearia officinalis v. groenlandica	......	......	......	......
— — *v. oblongifolia*	...	...	...	...
Draba alpina	......	......	......	......
— — *v. glacialis*	....		.....	
— — *v. oblongata*	....			
— *glacialis*	.....			
— *crassifolia*	....		......	.....
— *aurea*			.....	
— *repens*			.....	
— *nivalis*	......	......	......	......
— *Fladnizensis*	......	......	......	......
— *hirta*	......	......	......	......
— *arctica*	.....	......	......	.....
Braya purpurascens	......	......	......	
— *alpina* [1])		......	......	
Eutrema Edwardsii		...		
Cardamine bellidifolia	......	......	......	......
— *pratensis*		......	......	
Arabis alpina		....	......	......
— *Holboellii*			......	......
— *arenicola* [1])			...	
Papaver radicatum	......	......	......	......
Thalictrum alpinum		......	......	......

[1]) According to kind communication from Mr. C. H. Ostenfeld, Ph. D., inspector of the Botanical museum of Copenhagen, the following emendations ought to be made in Kruuse's above-mentioned list of phanerogams etc. (Medd. om Grønland, XXX, S. 143—208):

P. 159. *Cerastium Edmonstonii* (Watson) var. *cæspitosa* (Malmgr.) is: *C. alpinum* L. f. *pulvinata* Simm.

P. 164. The specimens of *Braya alpina* Sternb. & Hoppe cited from Klitdalen in Scoresby Sund (Hurry Inlet, Ryder's Dal, in stony plains and in downs) are: *Arabis arenicola*.

P. 199. *Dupontia Fisheri* from Hurry Inlet, the (Dinosaur-)cleft, is *Poa* (*glauca?*).

	Northern coast part 75°—73°30′	Northern inlet part 73°30′—71°20′	Scoresby Sund 71°30′—70°	Cape Dalton part 70°—69°25′
Batrachium paucistamineum v. eradicata			.....	
Ranunculus glacialis	.....	.....	.....	.....
— *pygmæus*	.....	.....	.....	.....
— *hyperboreus*	.....	.....	.....	.....
— *nivalis*	.....	.....	.....	.....
— *altaicus*	.....	.....	.....	
— *arcticus*	.....	.....	.....	.....
Saxifraga hieraciifolia	.....	.....	.....	
— *nivalis*	.....	.....	.....	.....
— *stellaris v. comosa*	.....	.....	.....	.....
— *cernua*	.....	.....	.....	.....
— *rivularis*	.....	.....	.....	.....
— *decipiens*	.....	.....	.....	.....
— *tricuspidata*			.....	.....
— *hirculus*	.....			
— *aizoides*		.....	.....	
— *flagellaris v. setigera*	.....			
— *Aizoon v. brevifolia*			.....	
— *oppositifolia*	.....	.....	.....	.....
— — *v. Nathorsti*	.....	.....	.....	
Sedum Rhodiola	.....	.....	.....	.....
Armeria vulgaris v. sibirica	.....	.....	.....	
Pinguicula vulgaris			.....	
Veronica alpina		.....	.....	.....
— *saxatilis*			.....	.....
Pedicularis lapponica		.....	.....	.....
— *flammea*	.....	.....	.....	.....
— *hirsuta*	.....	.....	.....	.....
Euphrasia latifolia		.....	.....	.....
Polemonium humile	.....			
Gentiana tenella	.....		.....	
Diapensia lapponica			.....	.....
Pyrola rotundifolia v. grandiflora		.....	.....	
Arctostaphylos alpina		.....	.....	.....
Phyllodoce coerulea			.....	.....
Cassiope tetragona	.....	.....	.....	.....
— *hypnoides*			.....	.....
Rhododendron lapponicum	.....	.....	.....	.....
Vaccinium uliginosum	.....	.....	.....	.....

	Northern coast part 75°—73°30′	Northern inlet part 73°30′—71°20′	Scoresby Sund 71°30′—70°	Cape Dalton part 70°—69°25′
Campanula uniflora	......	......	......	......
— *rotundifolia*	....	......	......	......
Taraxacum phymatocarpum et aff.	......	......	.. ....	
— *croceum et aff.*		.....	......	......
Hieracium alpinum			......	......
Antennaria alpina		......	......	......
— — *v. glabrata*		......	......	......
Erigeron compositus	......		... ...	
— *uniflorus*	......	......	......	......
Arnica alpina	......	......	......	......
Matricaria inodora v. phæocephala		...		
Koenigia islandica	......	.. ..	......	......
Polygonum viviparum	......	......	......	......
Oxyria digyna	......	......	......	......
Rumex acetosella		......	......	
Salix herbacea	......	......	......	......
— *arctica*	......	......	......	......
— — *v. groenlandica*	......	......	......	......
— *glauca*			......	......
Betula nana		......	......	......
Tofieldia palustris		......	......	......
— *coccinea*		......	......	
Juncus biglumis	......	......	......	......
— *triglumis*	...	...	.....	
— *castaneus*	...	.. ..	.....	
— *trifidus*			......	.....
— *arcticus*		......	......	
Luzula multiflora			.....	
— *arcuata v. confusa*	......	......	.. ...	....
— *nivalis*	......		.....	
— *spicata*			......	....
Eriophorum Scheuchzeri	......	......	......	......
— *polystachium*	......	......	......	......
Elyna Bellardi	......	......	......	
Kobresia bipartita		......	.. ..	
Carex nardina	......	......	......	......
— *dioica v. parallela*			...	
— *ursina*	...	...	...	. .
— *scirpoidea*		.....	......	......

	Northern coast part 75°—73°30′	Northern inlet part 73°30′—71°20′	Scoresby Sund 71°30′—70°	Cape Dalton part 70°—69°25′
Carex microglochin			…	
— *rupestris*	…	…	…	…
— *incurva*	…	…	…	
— *Macloviana*			…	
— *lagopina*	…	…	…	
— *alpina*			…	
— *misandra*	…	…	…	…
— *glareosa*	…		…	…
— *bicolor*			…	
— *salina f. subspathacea*	…	…	…	…
— *rigida*		…	…	…
— *capillaris*		…	…	…
— *ustulata*			…	
— *rariflora*			…	
— *pedata*			…	…
— *supina*		…	…	
— *rotundata*			…	
— *pulla*		…	…	
Alopecurus alpinus	…	…	…	…
Hierochloa alpina	…	…	…	
Agrostis borealis			…	
Calamagrostis arundinacea	…	…	…	…
— *neglecta*		…	…	
Aira cæspitosa f. arctica	…			
Trisetum subspicatum	…	…	…	…
Pleuropogon Sabinei		…	…	
Dupontia Fisheri	…			
Phippsia algida	…	…	…	…
Arctagrostis latifolia	…	…	…	
Glyceria distans		…	…	
— *maritima v. vilfoidea*	…	…	…	…
— *angustata*	…	…	…	
— *Vahliana*	…		…	
Poa abbreviata	…	…	…	
— *glauca*	…	…	…	…
— *nemoralis v. pallida*			…	
— *alpina*	…	…	…	…
— *pratensis*		…	…	…

[1]) See note p. 427.

	Northern coast part 75°—73°30′	Northern inlet part 73°30′—71°20′	Scoresby Sund 71°30′—70°	Cape Dalton part 70°—69°25′
Poa cenisia	....	... ...	......	....
Festuca ovina	....	....	....	....
— *rubra v. arenaria*	...	....	....	
Lycopodium Selago f. appressa	.....	. .	....	....
— *annotinum f. pungens*			......	
— *alpinum*			.....	
Aspidium fragrans			...	
Cystopteris fragilis	.....	....	....	....
Woodsia ilvensis v. rufidula	. .	...	....	....
— — *v. alpina*		...	....	
— — *v. glabella*	...	....	.....	
Botrychium Lunaria		...	...	
Equisetum variegatum	......	....	....	....
— — *f. anceps*	....	...	....	...
— *arvense f. borealis*			....	....
— — *f. decumbens*	....	....	....	....

Note. The numbers and positions of the points in the list correspond to the extension of the species within each district, full dotting indicating that it is found everywhere, whereas points to the left in the column signifies that it is found only in the northern part, points to right that it is found only in the southern part of the district.

12—6—1911.

XIV. Undersøgelser af Mineraler fra Julianehaab af G. Flink, N. B. Bøggild og Chr. Winther med indledende Bemærkninger af N. V. Ussing. Untersuchungen an den eisenführenden Gesteine der Insel Disko von Dr. Th. Nicolau. Beretning om en Undersøgelsesrejse til Øen Disko 1898 af K. J. V. Steenstrup. Med 20 Tavler og et særskilt heftet Farvetryk. 1901. Kr. 6,50.

XXV. Om Bestemmelse af Lysstyrke og Lysmængde af K. J. V. Steenstrup. Fra en Vaccinationsrejse til Kap Farvel af G. Meldorf. On Ilvaite from Siorarsuit by O. B. Bøggild. Skildring af Vegetationen paa Disko af M. Pedersen Porsild. Med 6 Tavler. 1902. Kr. 6.

XXVI. Undersøgelser og Opmaalinger ved Jakobshavns Isfjord af M. C. Engell og H. Schjørring. On some Minerals from the Nephelite-Syenite at Julianehaab by O. B. Bøggild. Planktonprøver fra Nord-Atlanterhavet (c. 58°—60° N. Br.) af C. H. Ostenfeld og Ove Paulsen. Tuberkulosens Udbredelse i Grønland af Gustav Meldorf. Eskimoernes Indvandring i Grønland af Schultz-Lorentzen. On the Tension of Carbonic Acid in Natural Waters; the abnormal CO_2-Percentage in the Air in Greenland, etc., by August Krogh. Descriptions de quelques espéces nouvelles de Bryacées de l'île de Disko par I. Hagen et Morten P. Porsild. Notes on some rare or dubious Danish Greenland plants by Herman G. Simmons. Med 15 Tavler. 1904. Kr. 8.

XXVII. Carlsbergfondets Expedition til Øst-Grønland 1898—1900, ved G. Amdrup, N. Hartz, J. P. Koch, Willaume-Jantzen og H. Ravn. Med 8 Tavler. 1902. Kr. 10.

XXVIII. Carlsbergfondets Expedition til Øst-Grønland 1898—1900. Geologi og Ethnografi, 1ste Afdeling by C. Kruuse, Dr. Otto Nordenskjöld, O. B. Bøggild. Med 9 Tavler. 1904. Kr. 2,50.

2den Afdeling by O. B. Bøggild, Knud Poulsen, Otto Nordenskjöld, G. Amdrup, W. Thalbitzer. Med 7 Tavler og 1 Kort. 1909. Kr. 7,25.

XXIX. Carlsbergfondets Expedition til Øst-Grønland 1898—1900. Zoologi, 1ste Afdeling by Søren Jensen, Th. Mortensen, J. P. J. Ravn, H. Deichmann, Victor Madsen, Ad. S. Jensen, Dr. E. Fraas. Med 13 Tavler og 1 Kort. 1904. Kr. 5,50.

2den Afdeling by Adolf Severin Jensen. J. C. Nielsen, Th. Becker, H. J. Hansen. William Lundbeck. Med 1 Tavle. 1909. Kr. 4,50.

XXX. Carlsbergfondets Expedition til Øst-Grønland 1898—1900. Botanik, 1ste Afdeling by Chr. Kruuse, Helgi Jónsson, E. Larsen, E. Rostrup, Edv. A. Wainio, C. Jensen. 1907. Kr. 4.

2den Afdeling by Aug. Hesselbo, N. Hartz and Chr. Kruuse. 1911. Kr. 2.

XXXI. A phonetical study of the Eskimo Language based on observations made on a journey in North-Greenland 1900—1901 by William Thalbitzer. Med 4 Tavler. 1904. Kr. 8.

XXXII. Mineralogia Groenlandica af O. B. Bøggild. Med 1 Kort. 1905. Kr. 10.

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XXXV. K. L. Giesecke. Mineralogisches Rejsejournal über Grönland 1806—13. 2te vollständige Ausgabe mit 4 Tafeln. 1910. Kr. 8.

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Kort over Grønland. 1:2000000. 4 Blade. 1906. Kr. 10.

Kort over Kolonierne i Grønland. 1:2000000. 1 Blad. 1908. Kr. 2.